TheSmartDVR.com

JPEG2000 + H264 USER MANUAL

Models covered

DSD154 – 4 Channel DVR
DSD158 – 8 Channel DVR
DSD160 – 16 Channel DVR

Version 3.0

INSTALLATION & SAFEGUARDS

All the safety and operating instructions should be read before the unit is operated.

- To prevent electric shock or other hazard, do not expose this unit to rain, moisture or dust.
- This unit should be located in an area with low humidity and a low dust level.
- Place this unit in a well-ventilated place and do not place heat-generating objects on this unit.
- This unit should not be located in an area where it is likely to be subjected to vibration.

Before You Start

- Ensure the power switch is in the OFF position prior to starting.
- Do not attempt to service this unit yourself as opening or removing covers may expose you to dangerous voltage or other hazards.
- Installation should be performed by qualified service personnel only.
- This unit should be operated only from the type of power source indicated on the manufacturer's label and with the power supply included with the unit.

Notice

- Before initial configuration or operation you must first set the TIME/DATE, followed by setting the unit to the FACTORY DEFAULT settings, lastly clearing the HDD. Please follow these steps in order.
- Pull the unit out of record mode prior to cutting off power to the unit. Do this by entering the setup menu, followed by switching the unit off. Powering off the unit while writing to the disks can cause critical malfunctions. (Ex: Recording Error, Playback Error, System Error).
- When you set the record type, you have to set the Record Configuration and also Schedule Setup. This unit records as per the Record type & Schedule setup.
- The [REC] button on the front panel is for emergency record using highest image quality.

The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user of this equipment that there are dangerous voltages within the enclosure, which may be of sufficient magnitude to constitute a risk of electric shock.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (Servicing) instructions in the literature accompanying the appliance.

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CHAP. 1 Features & Package Contents

1-1. Features

Live View

Real time display per camera
Auto Sequence
PIP (Picture in picture)
Event Popup
Digital Zoom
Display Freeze
Simple Playback mode
Simple PTZ camera control

Record

Variable Record resolution (For higher picture quality or higher recording speed)
Efficient Image Quality setup in 5 steps
Schedule Record / Holiday Record
Event Record (Alarm / Motion)
Emergency Record

Network

View Live and Playback images across IP network
Copy images across the network
Network Video Server

Playback

Search & Playback by Date/Time, Event and Camera
Outstanding picture quality by JPEG 2000 compression algorithm (No mosaic effect)
Suitable for recording not only images but also text
Forward Playback Speeds (X1/16, X1/8, X1/4, X1/2, X2, X4, X16, X32, X64)
Backward Playback Speeds (X1/16, X1/8, X1/4, X1/2, X2, X4, X16, X32, X64)
Easy and convenient search by Jog Shuttle & Remote Controller

Data Back-Up

Simple Back-Up using built-in DVD Writer (Back-up DVD Player included in the package)
Network Back-Up using Remote Viewer program(Remote Viewer included in the package)
Supports larger capacity of HDD (500GB or larger)

Others

Multi-Language (English, Spanish, German, French, Italian, Japanese & Chinese)
VGA support both TFT LCD monitor and CRT monitor (option)
Lock the system by Password
JOG / SHUTTLE
PAL/NTSC Auto detection
Control the unit by using Remote Controller (Normal, Single, Universal)
Audio recording: IN – 4 channels, OUT – 1 channel (mono)

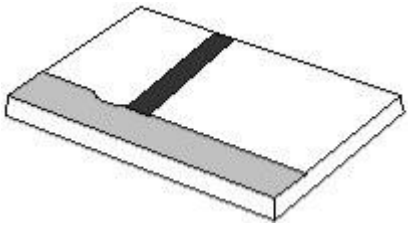
1-2. Package Contents

1. DVR Main Unit

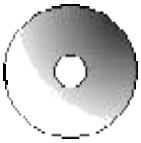
2. Remote Controller

3. Power Cable

4. Power Adapter



5. User's Manual



6. Software CD

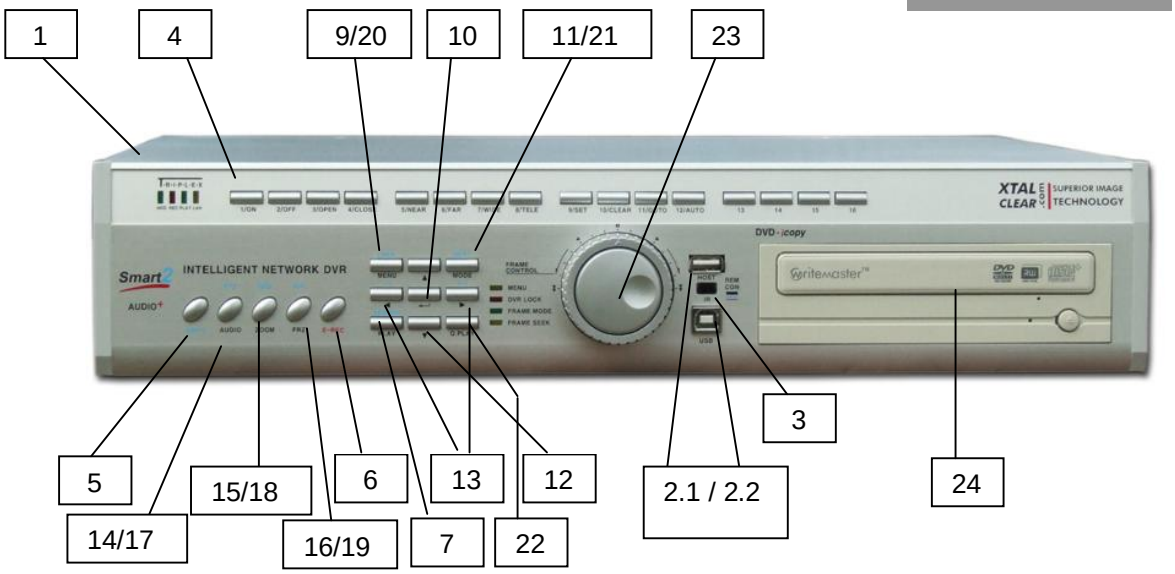
7. Battery for remote

8. Bolts & Foam Mount washers

9. Mouse

Package Contents	Description
1. DVR Main Unit	STAND-ALONE DIGITAL VIDEO RECORDER
2. Remote Controller	DVR control
3. Power Cable	AC power supply to adapters for 12 V DC power
4. Power Adapter	12 V DC power supply to DVR main board
5. User's Manual	User's Manual
6. Software CD	Remote Viewer Software & Back up DVD player
7. Battery	Battery for remote controller
8. Bolts & Foam Mount Washers	For attaching Hard Disk Drive into DVR
9. Mouse	PS/2 Mouse

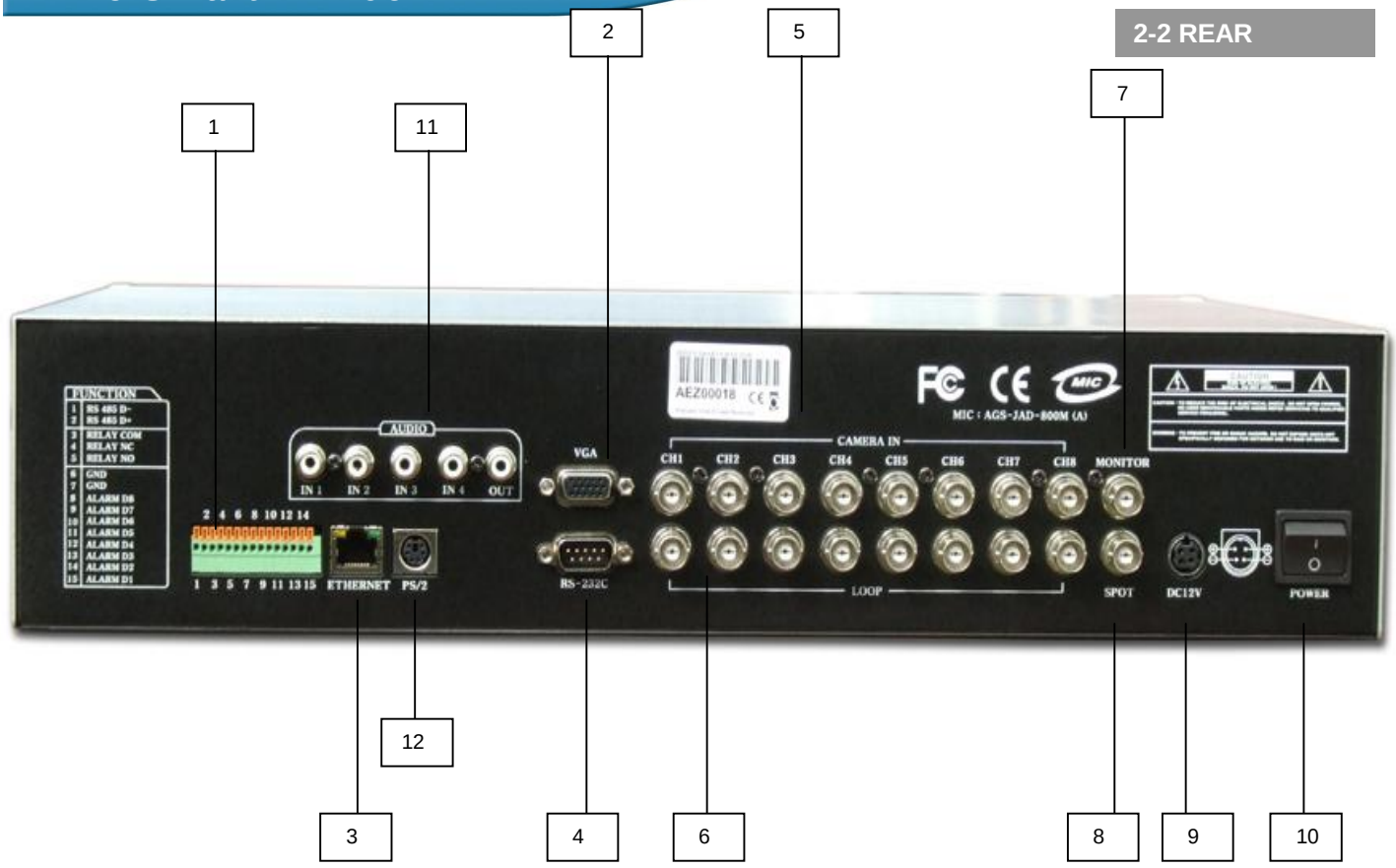
2-1 FRONT



Name	Function	
1. LEDs	Shows status of operation	
2.1 USB	Used for backup via upper USB port	
2.2 USB	Used to upgrade Firmware only via lower USB port	
3 IR	IR receiver	
4.1 Camera selection	4.1. Pressing these buttons will display a full screen image of that camera	
	4.2. Control PTZ camera (Each button is assigned for each PTZ command)	
4.2 PTZ camera control	•ON: LIGHT ON	•SET: SET PRESET
	•OFF : LIGHT OFF	•CLEAR : CLEAR PRESET
	•OPEN : IRIS OPEN	•GOTO : GOTO PRESET
	•CLOSE: IRIS CLOSE	•AUTO : AUTO SCAN
	•NEAR : FOCUS NEAR	• F1 : USER 1
	•FAR : FOCUS FAR	• F2 : USER 2
	•WIDE : ZOOM IN	• F3 : USER 3
	•TELE : ZOOM OUT	• F4 : USER 4
5. SHIFT	THIS KEY IS PRESSED TO SELECT ADDITIONAL FUNCTIONS ON A KEY	
6. E-REC	Emergency Record at continuous, 60ips, SUPER FINE size (Press & hold for 3 seconds to return to Schedule Record)	
7. PLAY	Playback of recorded data on HDD	

8. SHIFT & PLAY	Search recorded data on HDD
9. MENU	Set up for SYSTEM MENU or Use to exit the menu **PRESS MENU BUTTON BEFORE POWERING OFF UNIT**
10. ENTER	Selects each menu option
11. NEXT	Move to next step
12. ▲▼◄ ►	Navigate in the menu
13. + -	Reduce or increase the option value in the menu (USE SHIFT KEY)
14. PTZ	On/Off for PAN/TILT/ZOOM control mode Press this button first to control PTZ camera connected to DVR unit via RS-485
15. SEQ	Auto sequencing in full screen mode
16. PIP	Picture in Picture mode
17. AUDIO	Select audio channel
18. ZOOM	Zoom control
19. FRZ	Freezes an image
20. K.LOCK	Lock key function (to unlock press Shift & K Lock for 3 seconds)
21. MODE	Switches from full screen display to 9 split screen
22. Q.PLAY	QUICK PLAY – Play images recorded 2 minutes ago in forward direction (only if recording in continuous mode)
23. JOG SHUTTLE	Pressing Jog Shuttle button (Ready for use Jog/Shuttle): In playback mode, pressing J. SHUTTLE button freezes images.
	RUN LED on: While you operate Jog or Shuttle
	ACTIVE LED on: When J. SHUTTLE button is pressed
	SEARCH FACILITY : Press J. Shuttle button, and images in playback pause, and Jog and Shuttle makes it very easy and convenient to search forward or backward, fast and slow, as user wants. Note that Jog Shuttle can only be activated when ACTIVE LED is ON.
24. DVD-RW	Data Back-up using built-in DVD writer

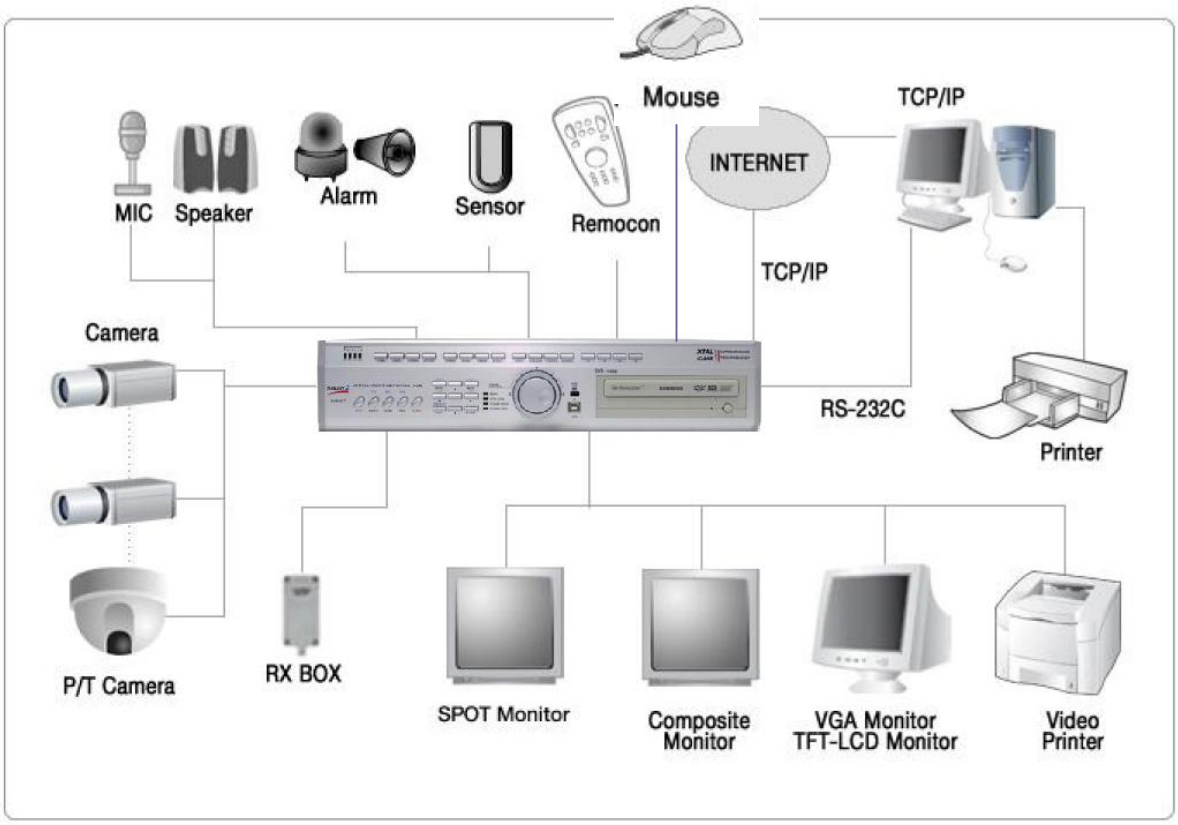
2-2 REAR



	Name	Functions
1	RS485	Connection with PTZ Camera or other external device using RS 485 interface (Pin 1: D- / Pin 2: D+)
	RELAY Output	Relay out terminal Pin 3 Common, Pin 4 NC, Pin 5 NO
	SENSOR Input	Sensor input terminal Pin 8 – 15 Alarms 08 – 01 Pins 6-7 Grounds
2	VGA	Connection to VGA Monitor (CRT type or TFT LCD monitor)
3	ETHERNET	Connection to ETHERNET device
4	RS-232C	Connection to external device as PC using RS-232C to control the DVR. NOTE: This facility is not supported.
5	CAMERA Input	Connection with camera
6	LOOP Output	Camera loop out
7	MONITOR Output	Connection with Composite Video Monitor
8	SPOT	Connection with additional Composite Video Monitor
9	DC Power	DC power input (DC12V, 6.67A adapter)
10	POWER SWITCH	Power ON/OFF. NOTE: To avoid deletion of HDD data, make sure you press MENU button and enter into menu setup before powering down. This safely takes unit out of record mode.
11	Audio Input	Microphone input (4 channels)
	Audio Output	Speaker Output (1 channel)
12	Mouse	PS/2 Mouse controls all functions of DVR

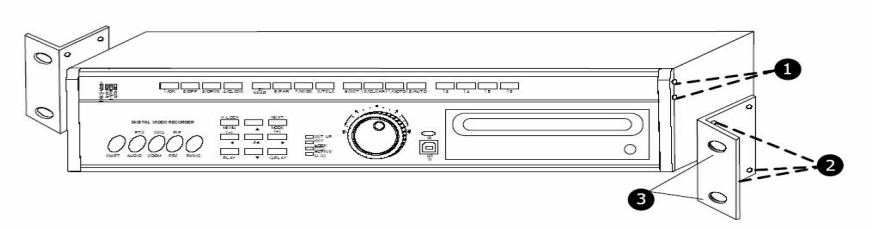
CHAP.3 Installation

3-1. Installation Configuration



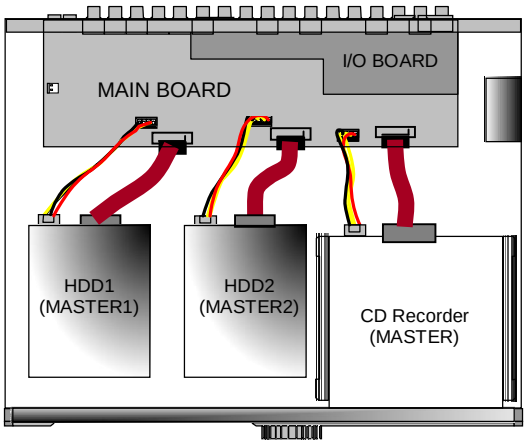
3-2. Detailed Installation

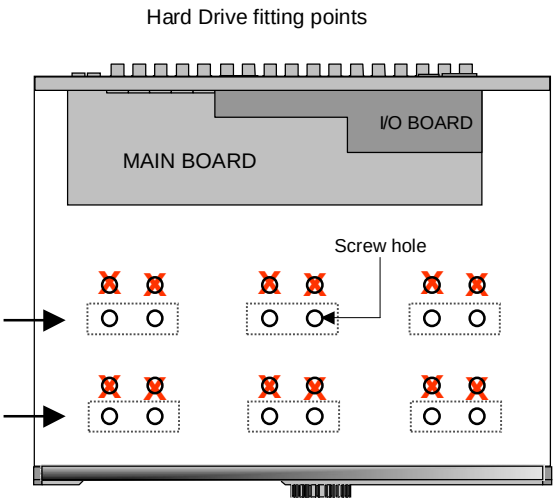
1) Rack mount



1. Remove 4 bolts on each side to install rack mount brackets
2. Attach rack mount bracket
3. Attach DVR brackets to 19” rack.

2) HDD

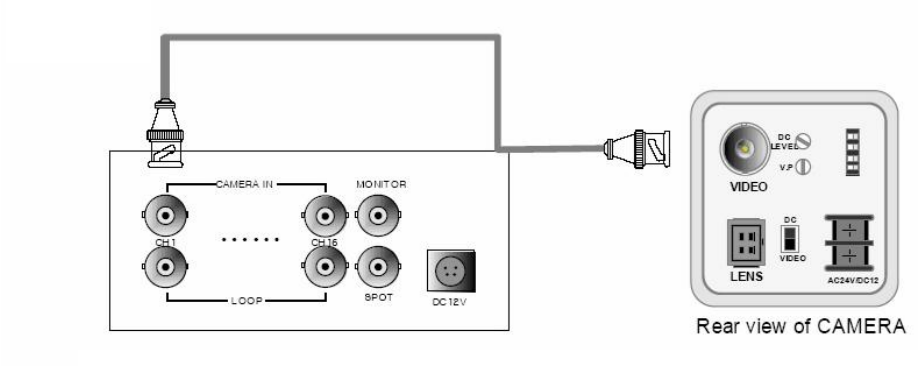




1. Connect Main Board and HDD1 using IDE cable and HDD power cable.
2. When you use just 1 HDD, install the HDD onto HDD1 location.
3. When you use 2 HDDs, install the first HDD onto HDD1 location and then install the second HDD onto HDD2 location in order.
4. Stick the HDD absorber (included in package) on the bottom of case and then install the HDD on top of them by using the bolts (included in package).
5. Screws must be inserted from outside of the case bottom.

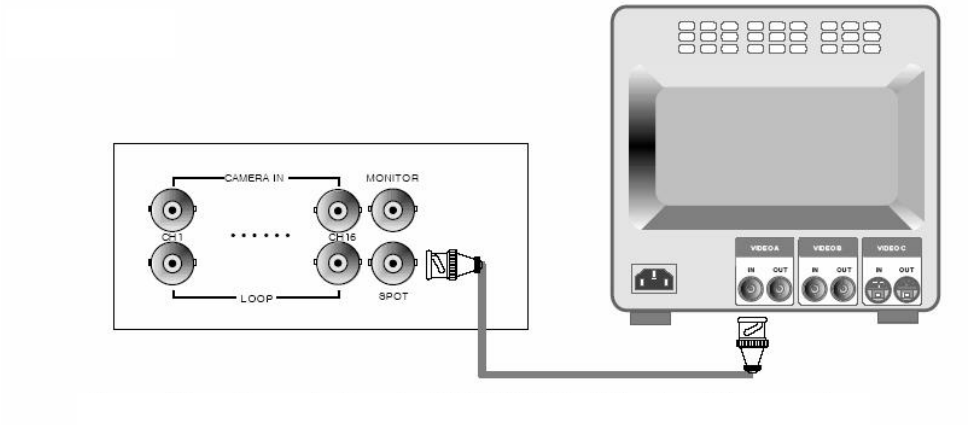
Special Note: This DVR uses serial (SATA Hard Drives). These are regarded as Master only drives.

3) Camera



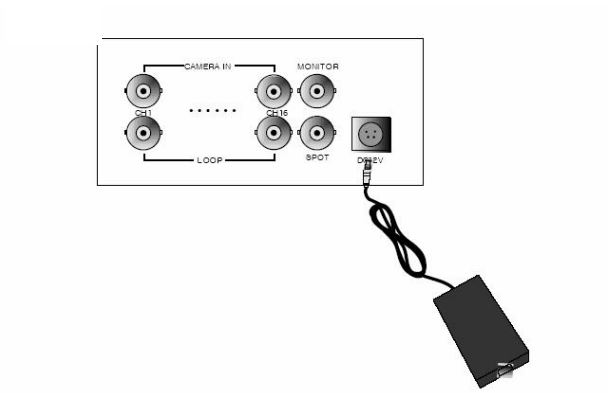
Connect cameras to the camera input on rear panel of DVR marked CAMERA IN.

4) Monitor



Connect the video output marked MONITOR to Video In of Main monitor.

5) Power

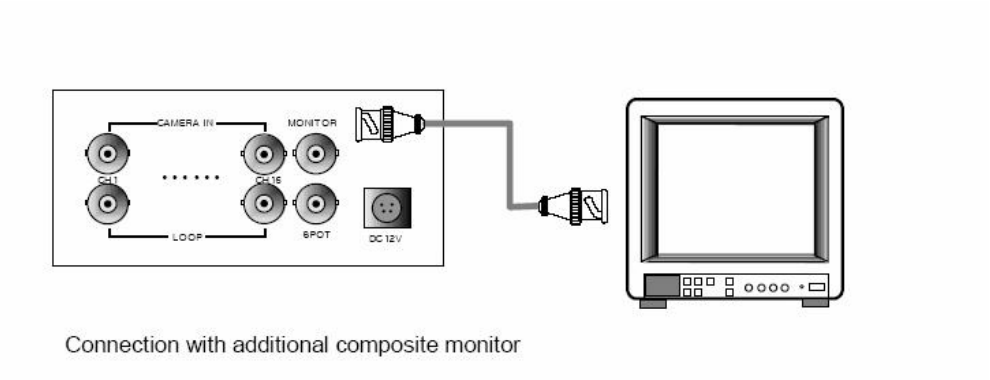


Connect one 12V DC 6.67A adaptor to the DC12V input connector on rear of unit.

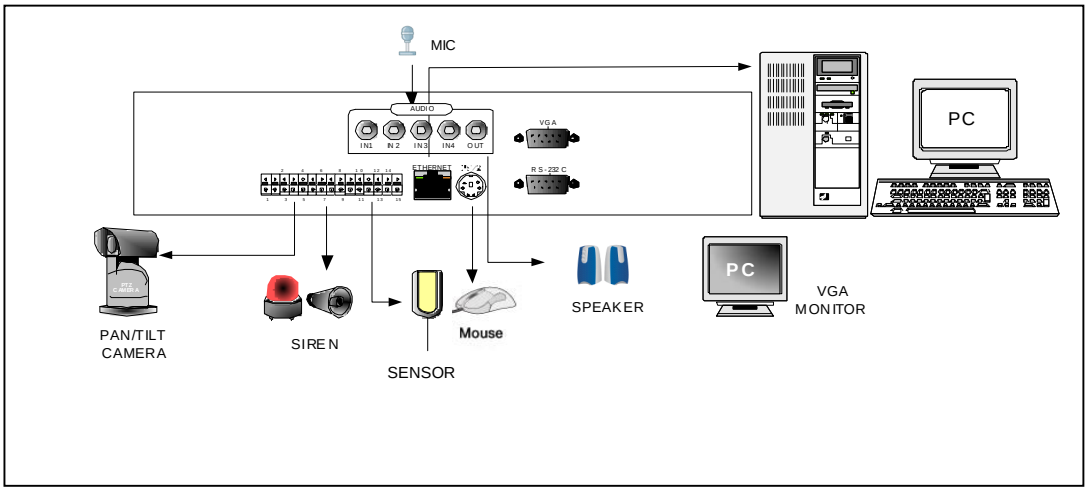
NOTE: Before you turn on power switch, ensure that power adaptor, cameras and monitor are connected properly.

ALSO TO AVOID DELETION OF HDD DATA, ENSURE YOU PRESS MENU AND ENTER BEFORE POWERING DOWN. THIS TAKES UNIT OUT OF RECORD MODE.

6) SPOT, VIDEO PRINTER



Connection with additional composite monitor



RS-232C : Control DVR through RS-232C port by using PC (N.B Not supported.)

RS-485 : Control external device like PTZ Camera

RELAY Output : Relay Output (Pin 3 ~5 at Terminal Block).

SENSOR Input : SENSOR Input (Alarm connection)

ETHERNET: Connection to LAN, WAN, Internet.

VGA: Connection to VGA monitor(CRT,TFT LCD).

Select VGA in DISPLAY SETUP menu before connection to VGA monitor

Resolution set by manufacturer is 800x600 60Hz. This can be altered by entering Monitor Setup/ VGA Setup / VGA resolution

Use VGA option board for both CRT type PC monitor or TFT LCD monitor.

AUDIO INPUT: Microphone Input (IN1~IN4)
AUDIO OUTPUT: Speaker Output (OUT)

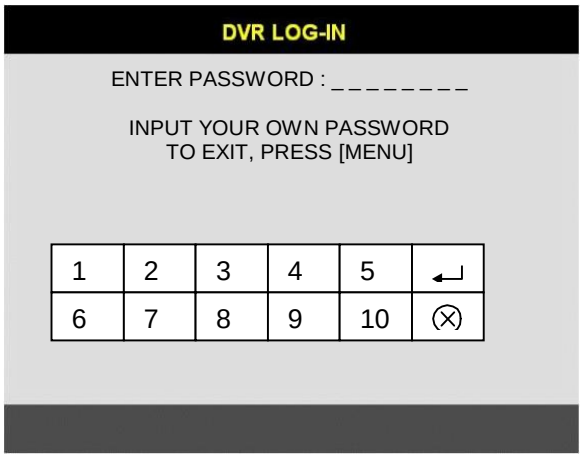
CHAP.4 Operation

4-0. Starting up system

Before turning on the DVR be sure that everything is firmly connected. Turn on the DVR and go the Menu using the relevant Login Password and you will then see the System Setup Screen. You may proceed by referring to the related chapters describing the various functions.

4-1. System Log-In

1) To enter into the setup menu, press the [MENU] button.
2) Enter password with channel number button from No.1 to No.10 on the front of the DVR unit. (Maximum of 8 digits are available)
3) After inputting the password, press the [ENTER] button.



Administrator:
If the password entered matches previously set password, “LOGIN ADMIN” message appears and you can enter into SYSTEM SETUP. If the password entered does not match previously set password, the DVR unit goes back to live display mode.

Factory default password is blank. For log-in, just press [MENU] button, followed by the [ENTER] button.

-Factory default password
ADMIN: (Blank)
MANAGER: ‘ 1 ’
USER 1~USER 8: ‘ 2 ’ ~ ’ 9 ’

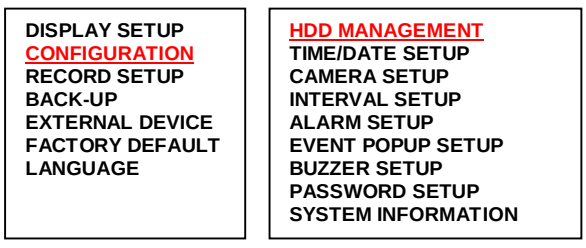
We recommend configuring a unique password as per the procedure in SYSTEM MENU - CONFIGURATION - PASSWORD SETUP.

For security reasons, be sure to make note of your own password.

4-2. Factory Default

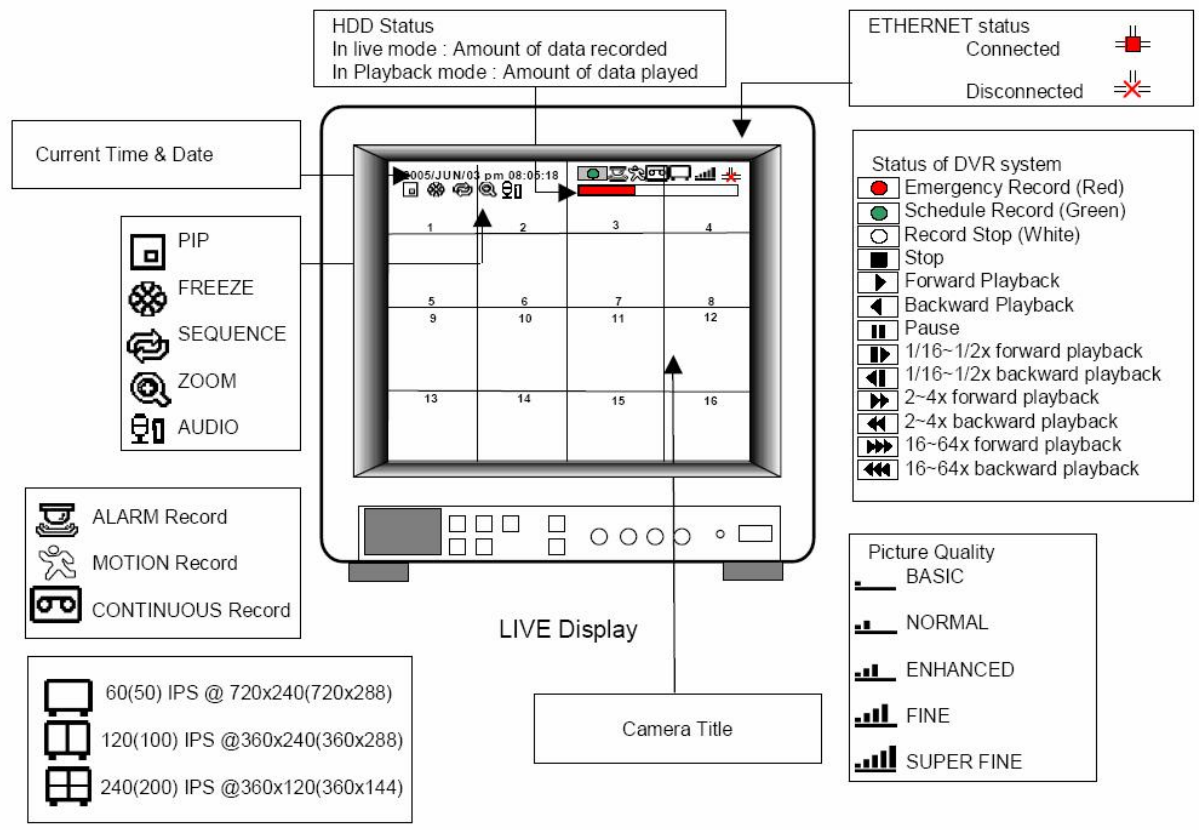
Before initial configuring or operation you must first set the Time/Date, followed by setting the unit to the FACTORY DEFAULT settings, lastly clearing the HDD. Please follow these steps in order. Improper operation may result if this action is not taken. Starting without FACTORY DEFAULT & HDD clear will cause malfunctions.

1. HDD CLEAR (page 22)



2.. FACTORY DEFAULT (page 31)

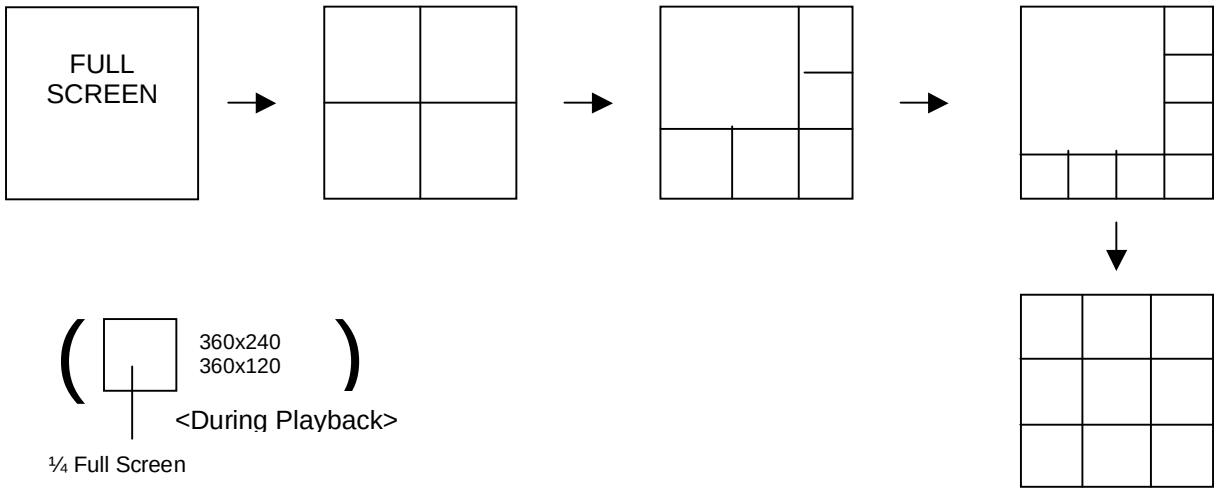
4-3. Display Configuration



4-4. Live View Setup

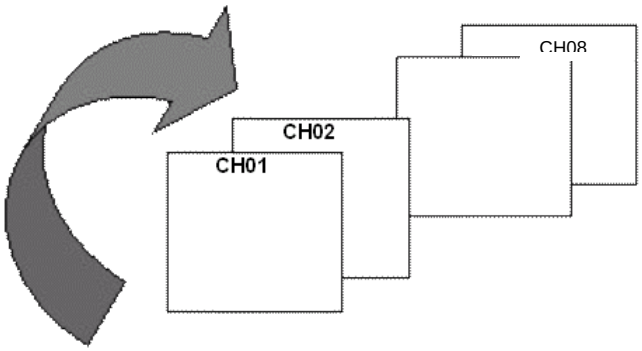
1) Full / Multiple View

Switch to multi-screen displays by pressing [MODE]. For full image display, just press the channel button you want or keep pressing [MODE] button. When you playback images that are recorded in 360x240 (360x288) or 360x120 (360x144) resolution, only 1, 4 and 9 way split screens are available.



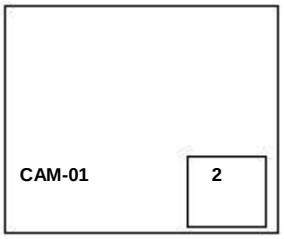
2) View In Sequence

Press [SEQ] button. It automatically displays full screen images in sequence. To stop the sequence press the [SEQ] button.



3) Picture in Picture (PIP View)

When it is in full screen display mode, you can see another camera in a small window by pressing [PIP]. This camera window rotates in sequence to next camera and you can set the rotating time interval as per the procedure in *SYSTEM MENU-CONFIGURATION- INTERVAL SETUP*.



4) Freeze View

Full display mode: If you press the [FRZ] button, the FRZ icon will be activated on screen and the "F" character will be shown beside camera title, and the live image will be frozen.

Split display mode: If you press the [FRZ] button, the FRZ icon will be activated on screen . Then press the channel button you want to freeze.

To release frozen image, press channel number of frozen image again and press [FRZ] button to exit FRZ mode.

5) Zoom View

In full screen, press the [ZOOM] button and move the Selection Frame using Jog Shuttle or direction keys to the area which you want to enlarge. Then press the [ENTER] button for 2-times enlarged picture. To exit Zoom mode, just press [ZOOM] button again.

Horizontal Movement: Jog Shuttle

Vertical Movement: Hold [UP or DOWN] button and turn Jog Shuttle

4-5. Record

The recording mode set before delivery by manufacturer (Default recording mode) is Schedule Recording. In this default recording mode, it records 24 hours/day continuously during weekdays and the weekend.

If you press the [E-REC] button whilst you are in live view mode, the record type is changed to Emergency Record mode.

EMERGENCY RECORD: at full resolution/best quality
Record type : CONTINUOUS, SUPER FINE quality,
60 (50) ips at 720X240 (720x288)

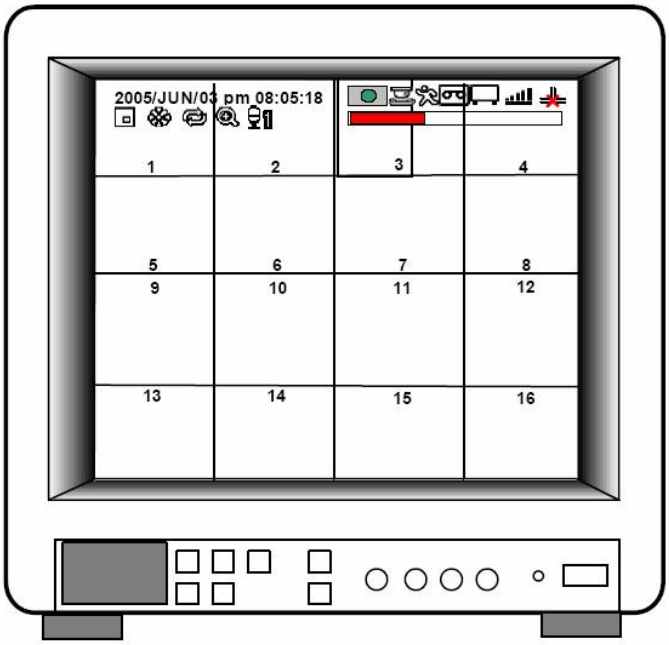
Emergency Record [RED]

Schedule Record [GREEN]

Stop Record [WHITE]

SCHEDULE RECORD:
Record and stop as set (time interval and record type) in RECORD-SCHEDULE SETUP menu.

STOP RECORD:
Recording stopped as set in RECORD-SCHEDULE SETUP menu.



On the screen

-Emergency Record

: Red Record Icon LED is lit
- **Schedule Record**
: Green Record Icon LED is lit
- **Record Stop**
: White Icon Record LED is off
- **Motion Record, Alarm Record, Alarm+Motion Record**
: Record standby LED blinks
: Record LED is lit

While in Emergency Record mode, press [PLAY], [MENU], or [SEARCH] button to exit from Emergency Recording mode and return to Schedule Record mode or press E-REC button for three seconds.

Further details, refer to the SYSTEM MENU – RECORD SETUP.

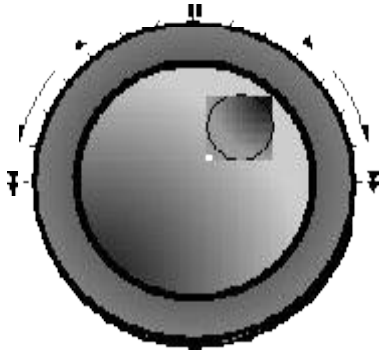
This DVR unit does not record in the following conditions:
While entered in the menu
No camera connected
HDD is full and Overwriting is off in the Record Setup menu.

4-6. Playback

In record mode or stop mode, press [PLAY] button to play the recorded data in 1x speed. Press [LEFT] for backward playback or press [RIGHT] button for forward playback. Use Jog Shuttle to pause and control playback speed. To stop playback, press the [PLAY] button again.

Using Jog/Shuttle
When the [ACTIVE] LED is on the [JOG SHUTTLE] is ready for use. The [RUN]] LED will blink whenever you operate the Jog Shuttle. For forward playback, turn the Shuttle right and turn Shuttle left for backward playback. Turn the inner Jog using your index figure to see picture by picture in forward or backward direction. Operation of Shuttle is as follows.

If you want to keep the playback speed you have selected using Shuttle, just hold the shuttle at that location for a few seconds, and playback in speed you selected continues until you rotate Shuttle again.



1/4 x : 4 times slower than normal playback speed
1/2 x : 2 times slower than normal playback speed
1 x : Normal playback speed
2 x : 2 times faster than normal playback speed
4 x : 4 times faster than normal playback speed
16 x : 16 times faster than normal playback speed
64 x : 64 times faster than normal playback speed

4-7. Search

Press [PLAY] & [SHIFT] buttons, and 3 different methods for searching recorded data are available as shown in following SEARCH window. For selecting searching method, use direction key or Jog Shuttle. After selecting each search method, press [ENTER] button for playback. To exit press [MENU].

1) SEARCH BAR

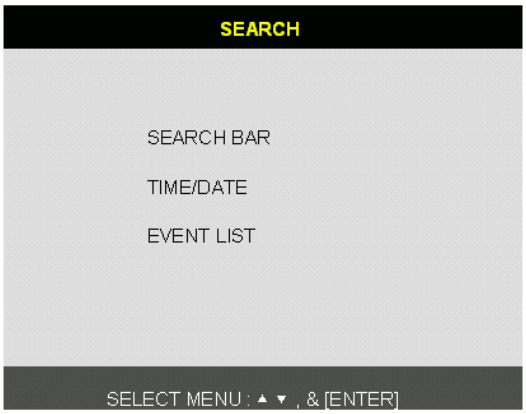
Search by percentage of total recorded data, using the arrow keys or the jog shuttle. It starts from image corresponding to set % of data on the search bar.

2) TIME/DATE

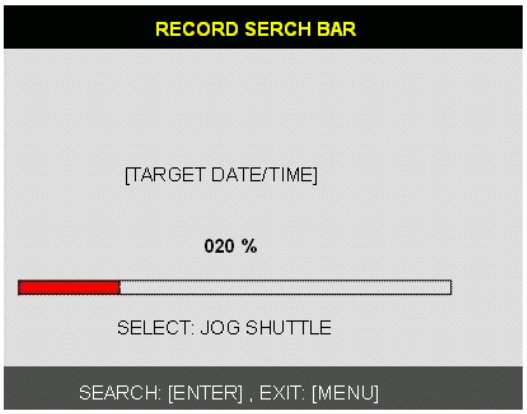
Search by time & date. Playback starts from the time & date selected.

3) EVENT LIST

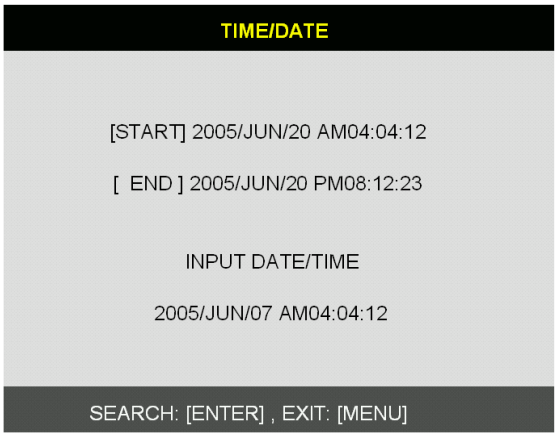
Search by event list (Motion, Alarm, Video Loss).



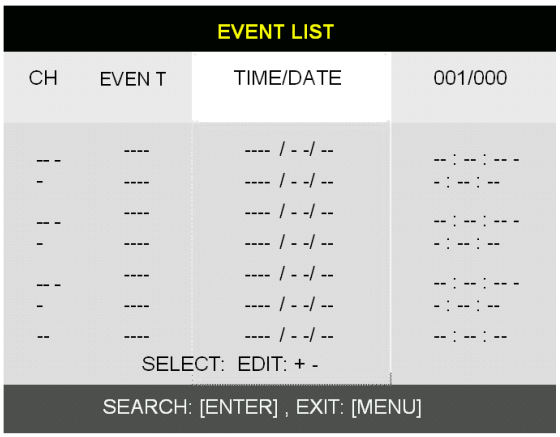
SEARCH page



SEARCH BAR page



TIME/DATE page



EVENT LIST page

4-8. PAN/TILT/ZOOM Camera Operation

Press [PTZ] button first for PTZ control mode. Numeric buttons from 1 to 16 and direction buttons are assigned for each PTZ command, and user can control PTZ camera connected to DVR unit by pressing any one of those 20 buttons, one after the other, as needed, and it is similar to controlling by a separate PTZ controller.

Button	PTZ command	Button	PTZ command
1/ON	LIGHT ON	10/CLEAR	PRESET CLEAR
2/OFF	LIGHT OFF	11/GOTO	PRESET GOTO
3/OPEN	IRIS OPEN	12/AUTO	AUTO SCAN
4/CLOSE	IRIS CLOSE	13/F1 ~ 16/F4	FUNCTION
5/NEAR	FOCUS NEAR	UP BUTTON	TILT UP
6/FAR	FOCUS FAR	DOWN BUTTON	TILT DOWN
7/WIDE	ZOOM OUT	LEFT BUTTON	PAN LEFT
8/TELE	ZOOM IN	RIGHT BUTTON	PAN RIGHT
9/SET	PRESET SET		

4-9. Data Back-Up

Enter into SYSTEM MENU-BACKUP-CDR SETUP.

1) Insert empty CD-R or DVD-R media into DVD writer and select the start time & date from which you want to back up. The START & END time / date in HDD sub-menu only shows start and end of recording. This is not selectable and editable.

   (700MB on CD-R sub-menu represents size of CD-R media and 4480MB on DVD-R media inserted.)

2) To set start time of back-up and back-up data size, press the [ENTER] button first on [START] or [SIZE] sub-menu and adjust using [+] or [-] button and move using [LEFT] and [RIGHT] button for next change. After setting the time & date and back-up data size, press the [ENTER] button again to exit.

   End of back-up time will be calculated automatically as per start time & date and the back-up data size you set.

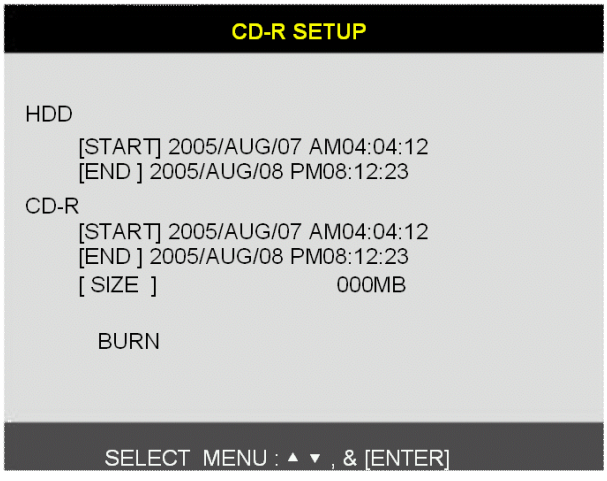
   User can select the back-up data size (size of back-up data from start of back-up) on [SIZE] item but END of back-up time is automatically determined by DVR system.

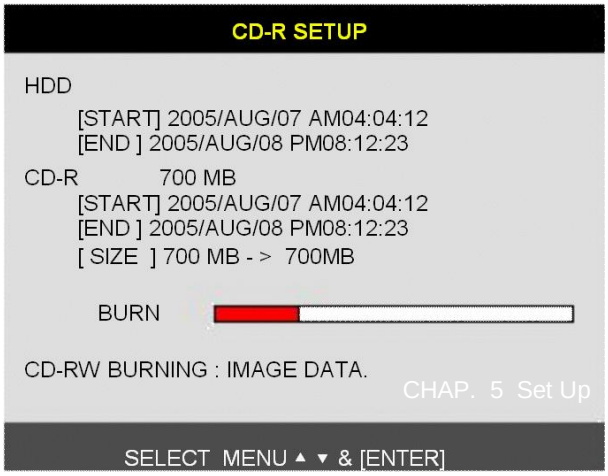
3) Press [ENTER] button on BURN sub-menu. DVR system starts burning CD or DVD.

4) When burning is completed, CD-R or DVD-R media will eject automatically. If you wish to continue backup of more data, the next CD/DVD back-up, set the start time of the next backup as the end time of previous back-up. If you need another backup, repeat the above procedure. To stop backup, press the [MENU] button.

   During the backup burning process it's impossible to cancel burning.

   User can verify the back-up media on a PC. On insertion the media will auto run.





NOTE: SIZE = 4480MB WITH DVD-R MEDIA

4.10. Audio Operation

Go into External Device menu and select audio setup. Set channels required. Note that Audio only works in DUPLEX mode and not in TRIPLEX mode. Also changing frame rate or using motion detect may affect Audio playback. If in doubt set factory defaults – audio will definitely work. Press [AUDIO] button to select audio channel …. CH1, CH2, CH3, CH4 or SILENCE in sequence. Sound of the selected audio channel can be heard in LIVE mode display. Recorded sound is heard in Playback mode.

4-11. Mouse Operation

1) Basic Operation
There are 11 keys that work by Mouse.
These include LEFT (3) Click once, double click & click hold
RIGHT (3) Click once, double click & click hold
WHEEL (5) Upper, lower, click once, double click & click hold

2) The Mouse cursor is not present

The following are reasons why the mouse cursor may not be displayed

Double clicking the LEFT button : The assigned channel is sequencing to FULL Screen → and double clicking Left button it reverts to previous split screen. If user selects FREEZE, the assigned channel freezes.

Double clicking the RIGHT button : The MOUSE ICON will be on and depending on the place of Mouse, it shows Width,Length and BOT.

Click hold WHEEL button : Deletes MOUSE ICON

Click Hold LEFT button : In ZOOM mode, holding this button will change the icon.
If User moves the MOUSE, ZOOM area also moves.

3) Working Status in SETUP MENU

- LEFT button click once : ENTER
- LEFT button double click : NEXT
- LEFT button click hold : MINUS

- WHEEL button click once : MODE (Schedule Recording, MASK SETUP)
- WHEEL button double click : LEFT (For deleting password)
- WHEEL button click hold : None

- WHEEL button upper : PLUS
- WHEEL button lower : MINUS

- RIGHT button click once : MENU
- RIGHT button double click : PLAY
- RIGHT button click hold : PLUS

Use the Left button to select Menu, and the Right button to exit Menu.
Move mouse up and down, moving left selects menu items.
WHEEL : for plus/minus
Left button : to press enter
Wheel button double click : for password deletes at Login.

4) Working Status of LIVE MOUSE ICON

To work command in LIVE MOUSE ICON, user clickS Left button once.
In case ICON is divided, upper part of button : Mouse Left button click once
Lower part of button : Mouse Right button click once

Following is the assigned KEY by each ICON.

ICON	Left Click	Right Click	ICON	Left Click	Right Click
	MENU			NEXT	ENTER
	PLUS	MINUS		MODE	
	REC	STOP		PLAY	QPLAY
	SEARCH			PTZ	
	ZOOM			FRZ	
	PIP			SEQ	
	AUDIO			KLOCK	

5) Working Status of PLAY MOUSE ICON

Mouse works the same as the above LIVE ICON.

Place mouse on ICON and by Wheel Up/Down button, PLAY SPEED can be controlled.

Pause mode, place mouse on ICON and by Wheel Up/Down, STEP PLAY can be controlled.

Following is the assigned KEY by each ICON.

ICON	Left Click	Right Click	WHEEL	ICON	Left Click	Right Click	WHEEL
	STOP BACKWARD		Step play		SLOW BACKWARD		
	FAST BACKWARD				PLAY		PLAYBACK SPEED
	FAST FORWARD				SLOW FORWARD		
	STOP PLAY		Step play		PAUSE		
	REC	STOP			ZOOM		
	MENU				AUDIO		
	MODE						

6) Working Status of PTZ MOUSE ICON

Mouse works Place Mouse on GOTO and etc. the same as the LIVE ICON. ICON , and using Wheel Up/Down, you can change value PRESET,TOUR,

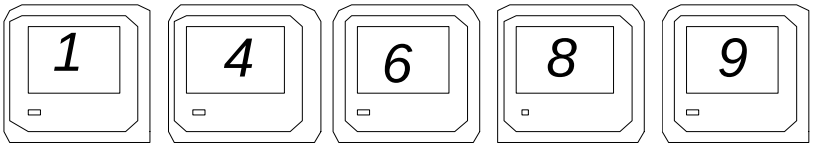
For other ICONs, user can change channel by Wheel Up/Down.

Following is the assigned KEY on each ICON.

ICON	Left Click	Right Click	WHEEL	ICON	Left Click	Right Click	WHEEL
	LEFTUP		Change Channel		UP		Change Channel
	RIGHTUP				LEFT		
	ENTER				RIGHT		
	LEFTDOWN				DOWN		
	RIGHTDOWN				ZOOM IN	OUT	ZOOM IN/OUT
	FOCUS NEAR	FAR	FOCUS FAR/NEAR		GOTO PRESET		Change Channel
	SET PRESET		Change Channel		PLUS	MINUS	PRESET NUM +/-
	CLEAR PRESET				AUTO SCAN		Change Channel
	PTZ MENU/EXIT				MENU	NEXT	Change Command

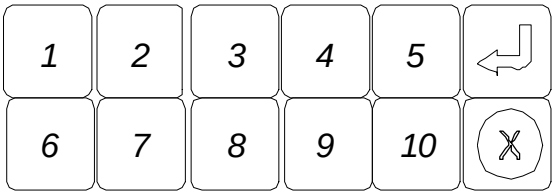
7) Working Status of SPLIT MOUSE ICON.

To change assigned screen division, click left button of mouse once.
Please note that specific division cannot be supported such as QUAD record/playback.
and according to DVR channel, screen division can be different.



8) Working Status of NUMBER MOUSE ICON.

User can use it for KLOCK or LOGIN and change PASSWORD.

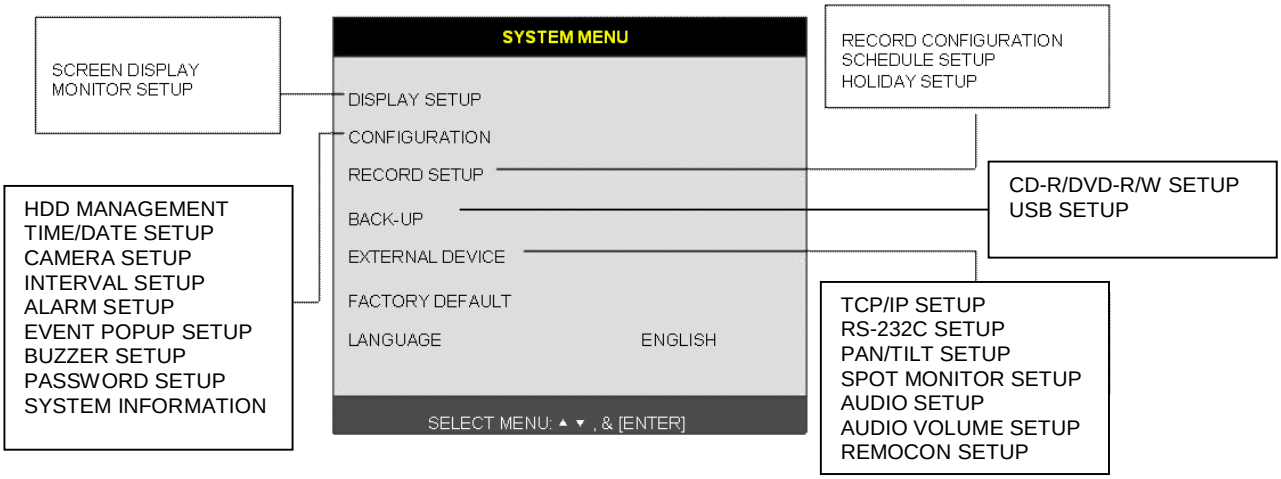


CHAP. 5 Set Up

5-1. Entering into the Menu

Enter into SYSTEM MENU by pressing [MENU] button.

BUTTON	FUNCTION
MENU	Enter into SYSTEM MENU, Move to previous menu, ESC
ENTER	Selection key, Move to sub-menu, change status (ON or OFF)
NEXT	Move to next page
UP	Move Up
DOWN	Move down
LEFT	Move left
RIGHT	Move right
MINUS [-]	Decrease the option value [SHIFT] + [◄] key
PLUS [+]	Increase the option value [SHIFT] + [►] key
Jog Shuttle	Jog Left turning: Move backward to next image / Decrease value Jog Right turning: Move forward to next image / Increase value
	Shuttle left turning: Reduce playback speed / Decrease value Shuttle right turning: Increase playback speed / Increase value

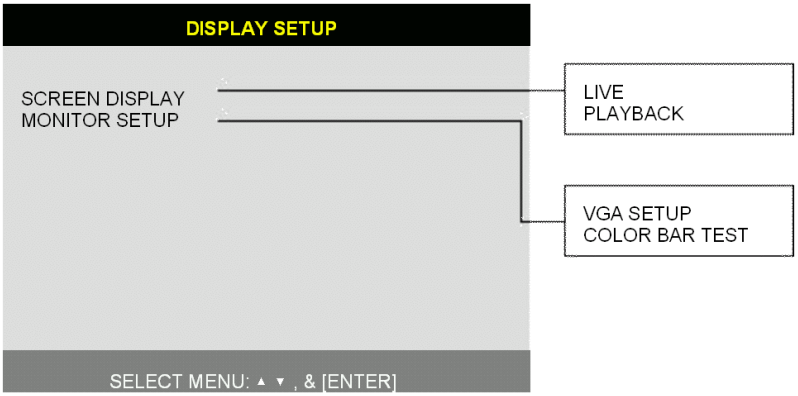


SYSTEM MENU

5-2. DISPLAY SETUP

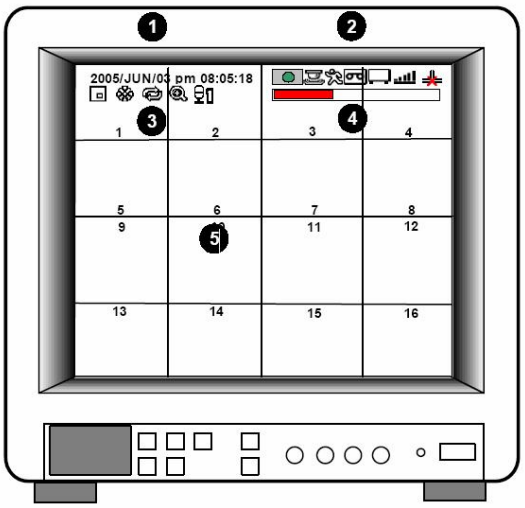
Setting up parameters for monitor and display on screen.

Enter into SYSTEM MENU-DISPLAY SETUP.



1) SCREEN DISPLAY

Setting up the screen display in LIVE mode and PLAYBACK mode.



Select the sub-menu, that you would like to set using direction buttons and then change ON/OFF with [ENTER] button.

1. TIME/DATE: Display time & date
2. DVR STATUS: Display system setting status
3. ICON DISPLAY: Display function setting status
4. REC/PLAY BAR: Display record / playback status
5. CAMERA TITLE: Display camera title

2) MONITOR SETUP

VGA SETUP: The VGA card enables you to connect a TFT LCD monitor or CRT type PC monitor to this unit. You will have to select one of the resolution settings below using the [+] [-] button. After setting the option below, press [ENTER] button then the DVR unit will set VGA mode automatically.

1280x1024 /60Hz	or	1024x768 / 60Hz	or	800x600 / 60Hz	or	640x480 / 60Hz
1280x1024 /75Hz	or	1024x768 / 75Hz	or	800x600 / 75Hz	or	640x480 / 75Hz

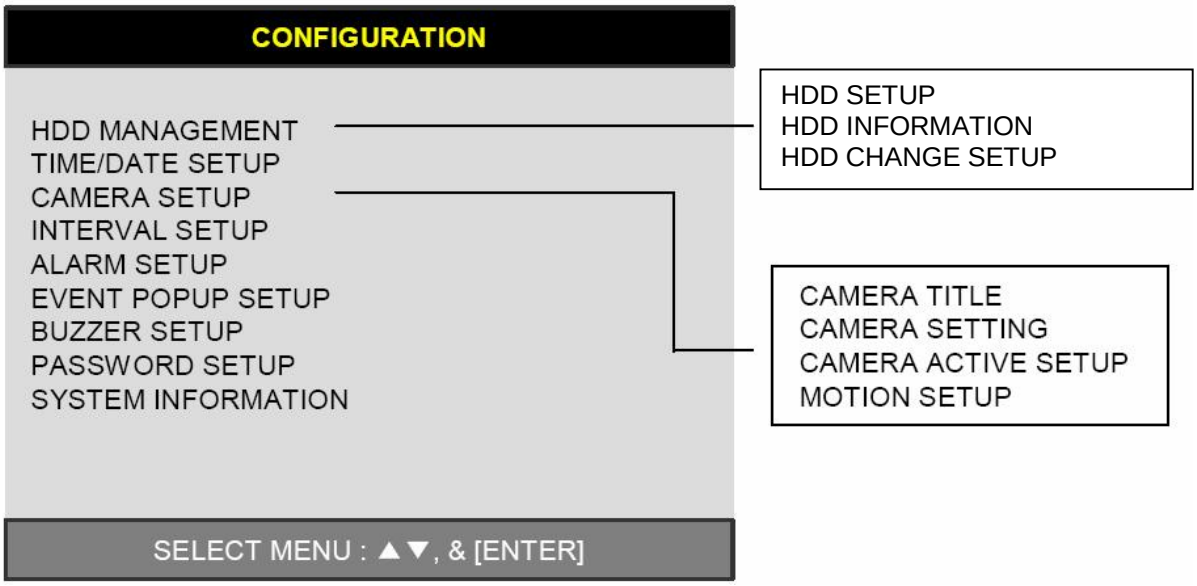
The resolution reflects pixels per inch. The higher the pixel rate the better the quality. Best quality is therefore 12804x1024 / 75Hz but must match TFT LCD or CRT PC monitor

COLOUR BAR TEST: Necessary to adjust colour tone of monitor. (Not available with VGA option)

NOTICE: When this DVR unit is operated for the first time, it will take a few seconds to boot up for initialisation of VGA mode.

5-3. CONFIGURATION

Various system parameters can be set in the CONFIGURATION menu.
Enter the SYSTEM MENU-CONFIGURATION and press the [ENTER] button.

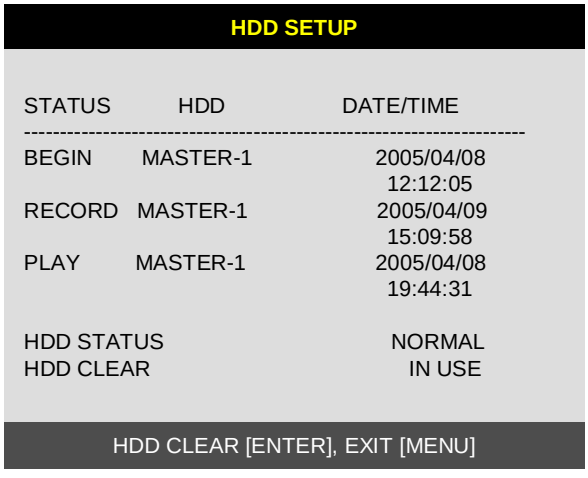


1) HDD MANAGEMENT

Enter SYSTEM MENU-CONFIGURATION-HDD MANAGEMENT and press the [ENTER] button.

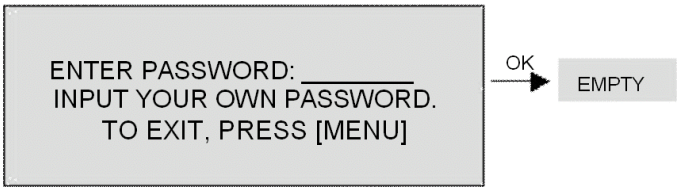
(1) HDD SETUP

This page includes information about start and end of recording, location of recorded data, or location of last playback on HDD. In addition, users can delete all the data on HDD.



On the [HDD CLEAR] sub-menu, press the [ENTER] button to delete all image data on HDD.

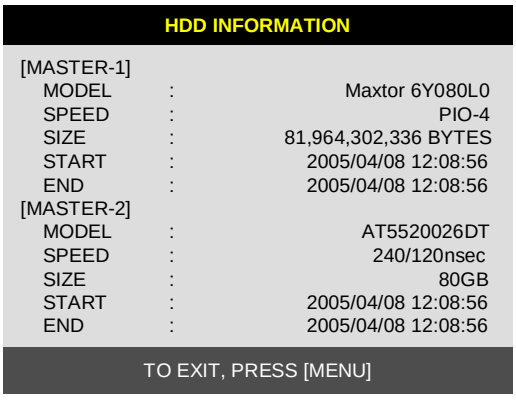
The system will ask you the password for verification. After you clear all data on the HDD, the status of HDD CLEAR changes from IN USE to EMPTY.
When you clear HDD, the event list is deleted, too.



If you selected OVERWRITE in Record Setup, the HDD STATUS above will display OVERWRITE.

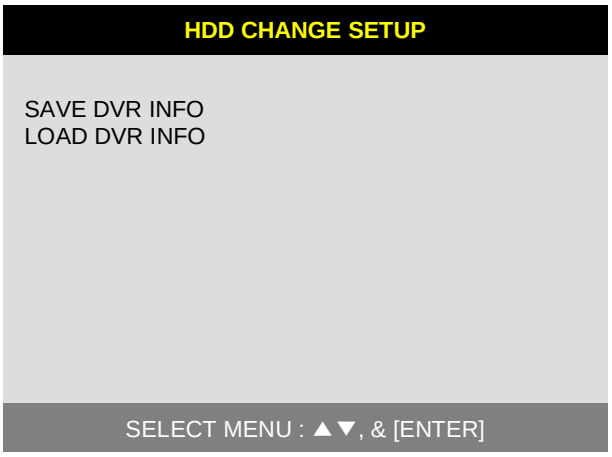
(2) HDD INFORMATION

This menu will show the physical state of the HDD in the DVR.



(3) HDD CHANGE SETUP

Without losing data, user can use HDD from other DVRs, and HDD installed in current DVR can be used in other DVRs.



1) SAVE DVR INFO

Once you press ENTER button on "SAVE DVR INFO" , the DVR information will be saved on HDD.
If the DVR information is saved properly, you can see "NOW CHANGE HDDDISK" message on DVR.
Then power off the DVR and change with new HDD.

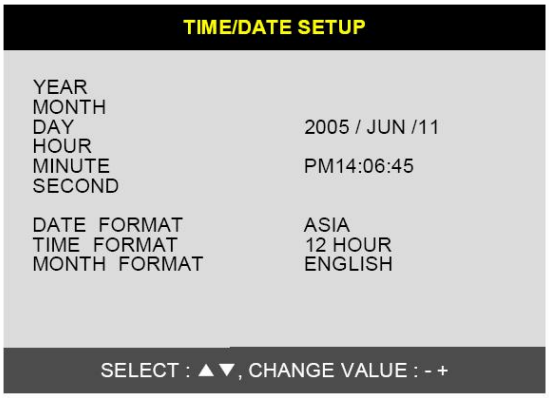
NOTICE : Be sure to write down the DVR information such as NTSC/PAL, MODEL name, Channel, HDD location(PORT 1, PORT2). When you want to retrieve the HDD(old), you must do this based on this DVR information.

2) LOAD DVR INFO

"LOAD DVR INFO " : it retrieves recorded HDD from other DVR set.

- HDD retrieval procedure
1. Install HDD with new DVR and power on.
2. Press [STOP] button when the DVR is booting.
   (Then, User can see “HDD CHANGE MODE-ON“ message.)
3. It retrieves when user executes “LOAD DVR INFO” in Menu.

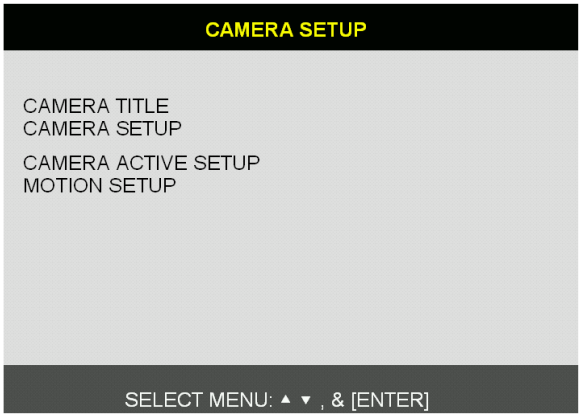
Please note that if the HDD conditions are changed between backup and retrieval there are some possibilities losing DATA. So, please remember the above during backup.



2) TIME/DATE SETUP

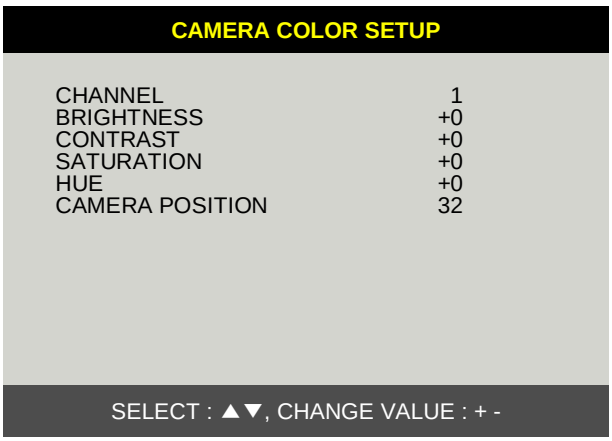
Set the time and date of the DVR system. It is very important for searching an event with time and date that this is accurately set. Note that the time and date set by manufacturer may be different from the local time and user must set the date and time before recordings start. The time and date can be set by using the direction buttons [+] [-] or the Jog Shuttle. There is an option for selecting date, time and month formats.

3) CAMERA SETUP



(1) TITLE: Input Title of each camera. Move to a channel you want to edit using [LEFT] or [RIGHT] direction button and then change the title-using [-] [+] button. When modification is finished, press the [ENTER] button. To exit to previous menu, press the [MENU] button.

(2) COLOUR: Adjust image colour
Move to each setting using [UP][DOWN] button and adjust using [-] [+] button or Jog shuttle.



CHANNEL: Select camera
BRIGHTNESS: Adjust image brightness (-32~ 31)
CONTRAST: Adjust colour contrast (-32 ~ 31)
SATURATION: Adjust colour saturation (-32 ~ 31)
HUE: Adjust colour hue (-32 ~ 31)
CAMERA POSITION : Adjust camera image to the center. If value is lower: Left.value is higher: Right (0~80)

CAMERA ACTIVE SETUP

CH	STATUS	LIVE	REC
01	ACTIVE	ON	ON
02	ACTIVE	ON	ON
03	LOSS	OFF	OFF
04	ACTIVE	ON	ON
05	ACTIVE	ON	ON
06	ACTIVE	ON	ON
07	LOSS	OFF	OFF
08	ACTIVE	ON	ON

SELECT : ▲▼ ◄►, & [ENTER]

MOTION CONFIGURATION

CHANNEL	01
SENSITIVITY GRADE	01
MOTION DISPLAY TYPE	OFF
RECORD DURATION	05 SEC

SELECT ▲▼, CHANGE VALUE : + -

(3) CAMERA ACTIVE SETUP: With direction button, move to option to be changed, and press [ENTER] button to select [ON/OFF]. If it is set at LIVE [OFF] and REC [ON], DVR system records, but does not show live image of set channel.

STATUS: Shows if image from a specific channel is set for live display and recording. In normal camera condition, it is ACTIVE, but LOSS is displayed when the cable is disconnected or camera is not working.
LIVE: Decides whether to show LIVE screen image or not.
REC: Decides whether to record relevant channel or not.

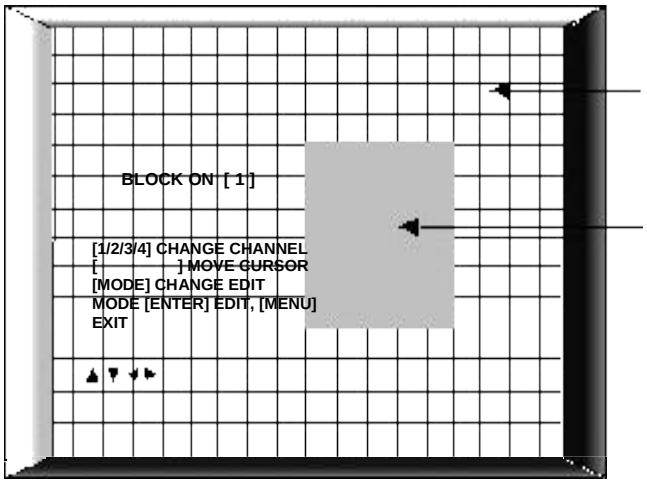
(4) MOTION SETUP: You can set sensitivity of motion detection in 4 steps, motion detection area and others in relation to motion recording in this menu.

(4)-1. MOTION SETUP

SENSITIVITY GRADE: Adjusts motion detection sensitivity. 1(LOW) 2(MEDIUM) 3(HIGH) 4(VERY HIGH)
MOTION DISPLAY TYPE: Showing cells with motion detected differently from cells with no motion.
RECORD DURATION: Whenever motion is detected and it is set in Motion Recording mode, DVR system records for RECORD DURATION from time motion is detected. (1sec. ~ 99 sec.) (Default duration: 5sec.)

4)-2. MOTION MASK SETUP

Set motion detection area. Direction button is for moving, [ENTER] button is for selection and MODE button is for changing mode of MASK SETUP.
CELL: Move to the location that you want to detect and then press the [ENTER] button.
Highlighted cell area means motion detection area.
ALL ON: Set all cells as detection area. Use [ENTER] button to set.
ALL OFF: Set all cells as no-detection area. Use [ENTER] button to set
BLOCK ON: Select detection area by block. Use [MODE] button and press [ENTER] button to set ON.
BLOCK OFF: Select un-detection area by block. Use [MODE] button & press [ENTER] button to set ON.



Highlighted Area
(Motion Detection Area)

Non-highlighted Area
(No Motion Detection Area)

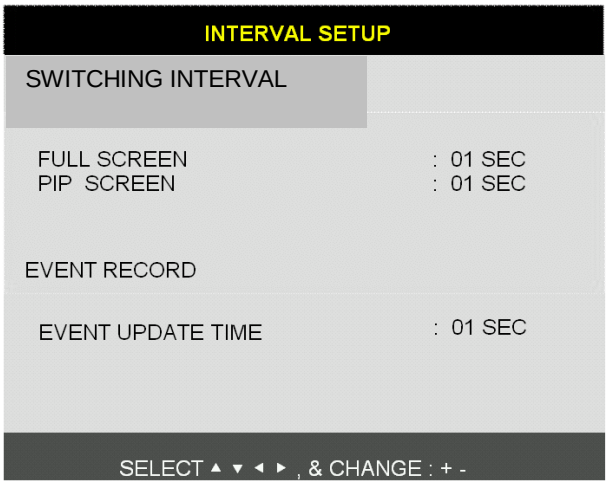
4) INTERVAL SETUP

Set the switching time interval for SEQ or PIP function.(1sec. ~ 99 sec.)

FULL SCREEN: set the sequencing switch time interval in live full screen.

PIP SCREEN: set the sequencing switch time interval of PIP window.

EVENT UPDATE TIME: Set the minimum time interval of event to be listed in EVENT LIST. If EVENT UPDATE TIME is set at 20 seconds, only following an event that lasted longer than 20 seconds will it be added to the EVENT LIST.

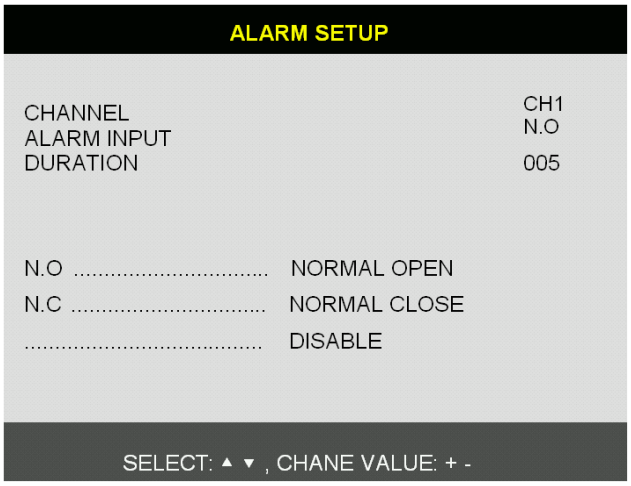

INTERVAL SETUP
SWITCHING INTERVAL
FULL SCREEN : 01 SEC
PIP SCREEN : 01 SEC
EVENT RECORD
EVENT UPDATE TIME : 01 SEC
SELECT ▲ ▼ ◄ ► , & CHANGE : + -

5) ALARM SETUP

Set type of alarm sensors connected to DVR unit.
N.O represents Normal Open type and N.C Normal Close type.

ALARM INPUT: Select type of alarm sensor connected to DVR Unit (N.O or N.C). Use direction buttons [+] or [- to set.
DISABLE disables alarm sensor connected to DVR.

DURATION: Set the duration of alarm when an alarm is Activated. (0 seconds ~ 300 seconds)



6) EVENT POPUP SETUP

When event is activated, a full screen image will popup.

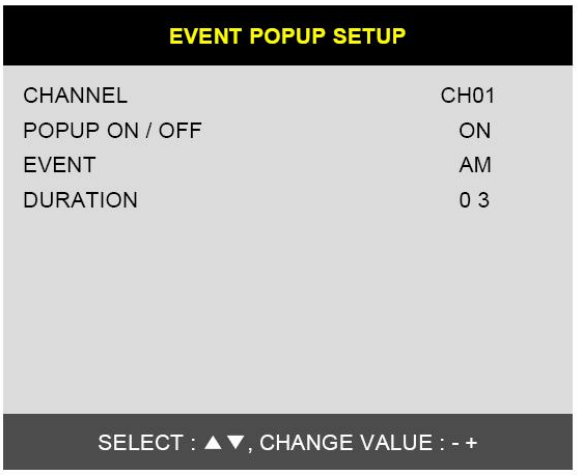
CHANNEL: Select a channel that uses an event (motion or alarm)

POPUP ON/OFF: Set a popup function to ON or OFF

EVENT: Set the type of event mode that this popup is applied to.
A: ALARM event or M: Motion event.

DURATION: Set the duration to how long the popup image is displayed. (0 seconds ~ 60 seconds)

NOTE: If two or more channels popup at the same time, the lowest channel number will only be displayed.

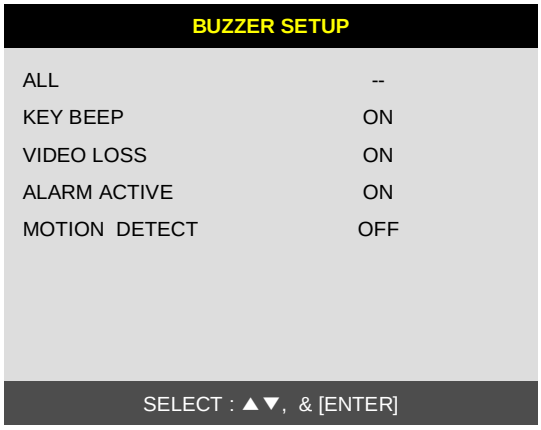


7)) BUZZER SETUP

Set parameters for buzzer (On or Off).
Use direction button and [ENTER] button.

KEY BEEP: buzz when button is pressed.
VIDEO LOSS: buzz when video signal is lost.
ALARM ACTIVE: buzz when alarm is activated.
MOTION DETECT: buzz when motion is detected.

User can set all buzzers at On/Off at once by set ALL at ON/OFF.



8) PASSWORD SETUP

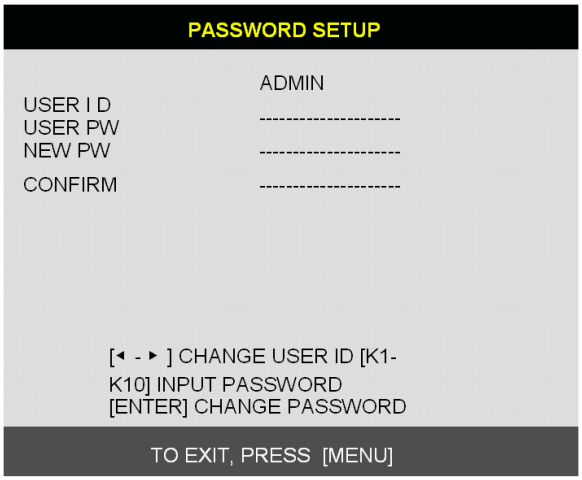
Set user ID and password.

-Use [UP] and [DOWN] button to move to option and [LEFT] and [RIGHT] button to set user ID.

The password must consist of a 1 to 8 digit number.
Just use numbers button from 1 to 10 on the front panel of DVR unit. Note that 10 = 0

-To change password, user must input current password and then input the new password. Then input again the new password to confirm.

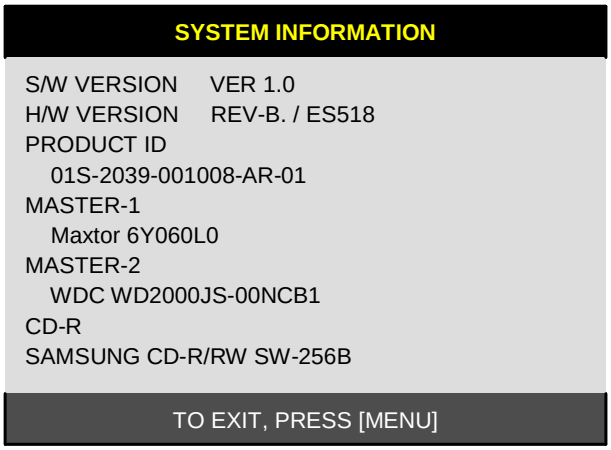
- Default value
ADMIN: '' (NULL)
MANAGER: '1'
USER 1: '2'
:
:
USER 8: '9'



Change the user PASSWORD during the first operation is recommended.
Ensure that you record the new password.

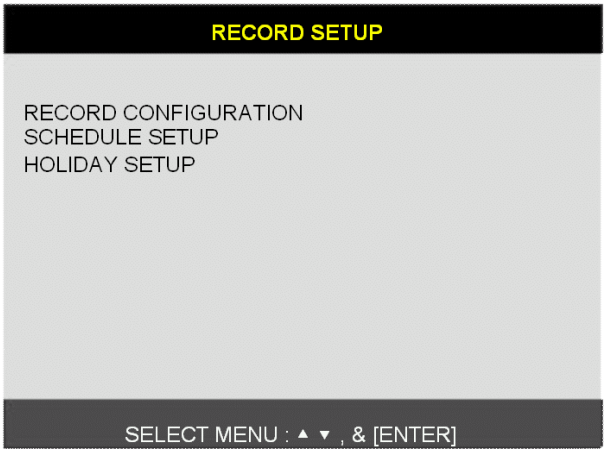
9) SYSTEM INFORMATION

DVR system information including firmware version, hardware version, product ID, etc.



5-4. RECORD SETUP

This is the most important configuration of the DVR.
Enter SYSTEM MENU-RECORD SETUP and press the [ENTER] button.



1) RECORD CONFIGURATION

Use direction button to move and [-] [+] button to set value.

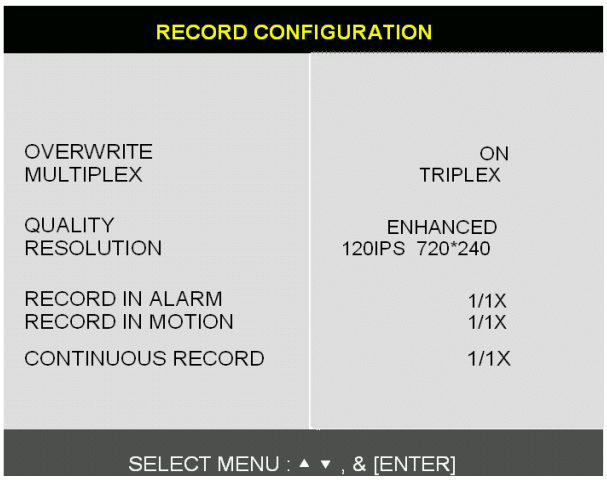
(1) OVERWRITE: Set overwrite or stop recording when the HDD is full.

(2) MULTIPLEX: Set DUPLEX or TRIPLEX

- DUPLEX: Playback & Ethernet
- TRIPLEX: Recording, Playback & Ethernet
  NOTE: Using Duplex is recommended for playback but Duplex does not record during a search.

3) QUALITY: Set record quality. This affects disk space.
BASIC / NORMAL / ENHANCED / FINE / SUPER FINE
In Emergency record, quality is SUPER FINE.

To send more images via IP network and longer recording times, set QUALITY to Normal or Enhanced and record at 360x288 PAL.



(4) RESOLUTION: Set recording resolution in PAL mode.
- 50 ips at 720x288 PAL 60 ips at 720x240 NTSC
- 100 ips at 360x288 PAL 120 ips at 360x240 NTSC
- 200 ips at 360x144 PAL 240 ips at 360x120 NTSC

Images recorded in 360x288 It is not possible to see those images in full screen mode in playback. Recording in half or quad resolution is recommended for higher recording speed.

(5) RECORD IN ALARM: <Set record speed (skip rate) > in ALARM record mode.

(6) RECORD IN MOTION: <Set record speed (skip rate) > in MOTION record mode.

(7) CONTINUOUS RECORD: <Set record speed (skip rate) > in CONTINUOUS record mode.

Set record speed (skip rate): Set record speed (skip rate) in alarm/ motion/ continuous mode
- 1/1x, 1/2x, ……..1/999x record speed

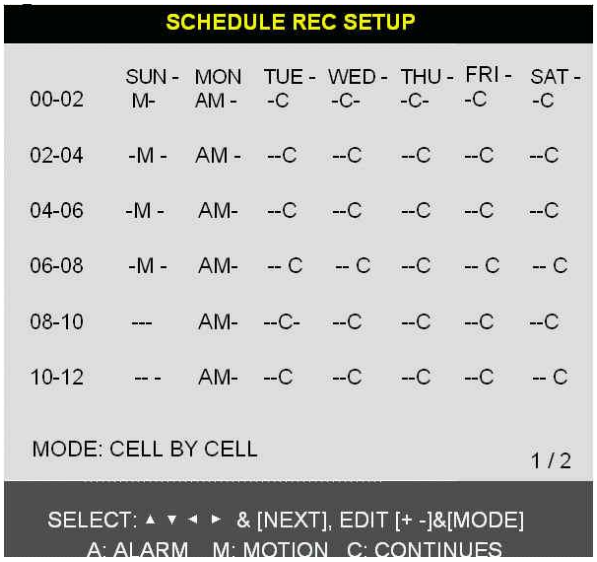
example: 1/2x) R->S->R->S…
example: 1/3x) R->S->S->R->S->S->R…
example: 1/4x) R->S->S->S->R->S->S…(R : RECORD S : SKIP)

example: If record resolution is set at 360x288, 1/1x = 100ips, 1/2x = 50ips, 1/3x = 33ips etc.

2) SCHEDULE SETUP

Unless you selected another recording mode, DVR system records in Schedule Recording mode. In SCHEDULE REC SETUP, you set type of recording for every time interval of 2 hours in each day of the week. Schedule Recording set by manufacturer is recording continuously at its full recording speed, and it means DVR system records continuously at 50 ips overall at 720x288 resolution.
To set Schedule Recording parameters, enter into SYSTEM MENU-RECORD SETUP-SCHEDULE SETUP and press the [ENTER] button.

(1) SCHEDULE SETUP
Set recording type for each recording time interval for a day of the week (2 hours interval).


SCHEDULE REC SETUP
SUN - MON TUE - WED - THU - FRI - SAT -
00-02 M- AM - -C -C- -C- -C -C
02-04 -M - AM - --C --C --C --C --C
04-06 -M - AM- --C --C --C --C --C
06-08 -M - AM- -- C -- C --C -- C -- C
08-10 --- AM- --C- --C --C --C --C
10-12 -- - AM- --C --C --C --C -- C
MODE: CELL BY CELL
1 / 2
SELECT: ▲ ▼ ◄ ► & [NEXT], EDIT [+ -]&[MODE]
A: ALARM M: MOTION C: CONTINUES

Use [MODE] button to select edit type and move to the time interval of a day of the week you want to change. Press [ENTER] button to select and use [+] or [-] button, to change the record type. To go to the next page, use the [NEXT] button.

MODE (Edit type)
TIME CELL: Set each time interval of a day
WEEK: Set a day of the week at once
TIMEZONE: Set a time slot at once
ALL: Set page by page at once
CLEAR ALL: Clear page by page

Except when EMERGENCY record is enabled, the DVR system records according to the SCHEDULE Record Setup. The DEFAULT record mode set by the manufacturer is 'C' which is CONTINUOUS recording mode.

RECORD TYPE
After power on ------ Schedule record
Exit from menu ------ Schedule record
Press and **HOLD** [E-REC] Emergency Record ------ Schedule record
End of search or playback -------- Schedule record
After pressing [E-REC] Emergency record -------- Emergency record (Continuous recording in best performance 50 ips at 720x288)

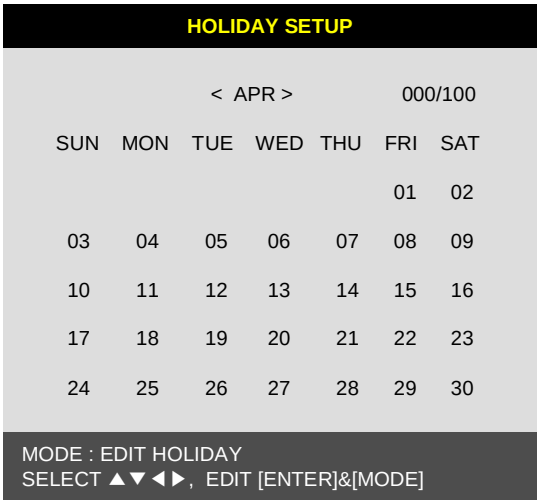
3) HOLIDAY SETUP

Users can set national holiday or holidays on calendar to record just as the setting for Sunday in SCHEDULE REC SETUP.

Use [MODE] button to select a month and direction button to move to a day, and press [ENTER] button to set a holiday. The colour of the date is then changed to red, as per Sunday.

EDIT HOLIDAY: Set as holiday
CLEAR MON DATA: Cancel holiday set per month
CLEAR ALL DATA: Cancel all holiday settings.

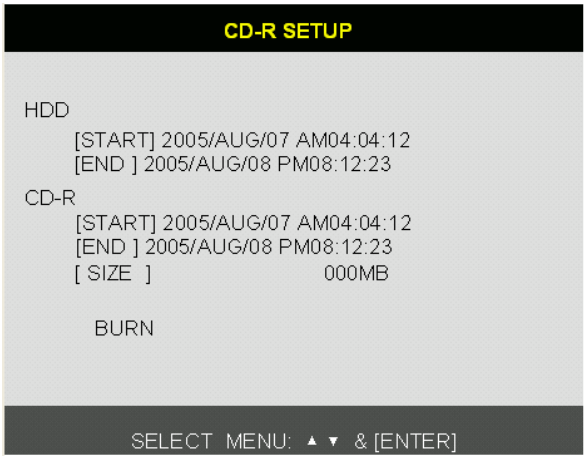
The maximum number of holidays that can be set is 100 days.

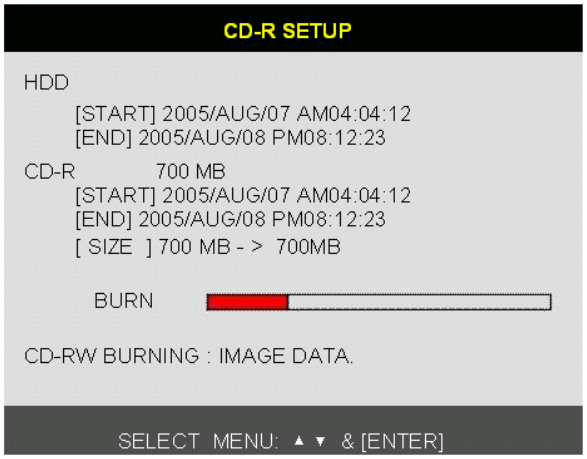

HOLIDAY SETUP
< APR > 000/100
SUN MON TUE WED THU FRI SAT
01 02
03 04 05 06 07 08 09
10 11 12 13 14 15 16
17 18 19 20 21 22 23
24 25 26 27 28 29 30
MODE : EDIT HOLIDAY
SELECT ▲▼◄►, EDIT [ENTER]&[MODE]

5-5. BACK-UP

1) CDR/DVDR SETUP

User can back up the recorded data to CD or DVD using DVD writer installed in DVR.
Refer to [START] and [END] of data on HDD and set copy from time, [START], and size of data copied, [SIZE], and move to BURN and press [ENTER] button to start copy.





System Status Messages:
- CD-RW DOOR CLOSE. CHECKING CD-R: Blank CD check
- INPUT BLANK CD: CD writer has no blank CD/DVD.
- CD-RW DOOR OPEN: Open CD-RW and insert blank CD–R or DVD-R media into drive.
- CD-R MEDIA IS DETECTED: Blank media has been inserted and detected. DVR system will display size of blank CD-R or DVD-R.

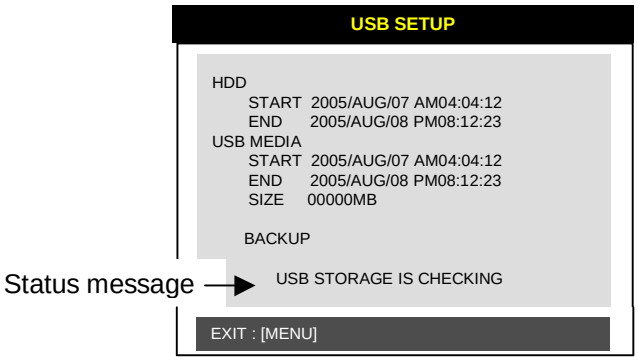
After you set [START] time and [SIZE] in CD-R sub-menu and then select BURN, DVR system starts copying images to CD/DVD and displays following message.

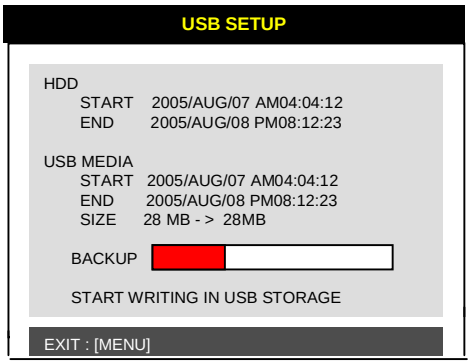
CD-RW BURNING: START
CD-RW BURNING: LEAD-IN
CD-RW BURNING: IMAGE DATA
CD-RW BURNING: CLOSE TRACK
CD-RW DOOR: OPEN

When burning is complete, CD-R/DVD-R media will eject automatically.
To copy more images, repeat above process. In next process, [START] time in CD-R sub-menu shall be [END] time in previous back-up, and you can copy images in series to many CDs/DVDs, as many as you want.
Note: **SIZE CHANGE** Use + and – to change size per 10Mb units or LEFT and RIGHT per 100Mb units.

2) USB SETUP

User can backup the recorded data to USB Media using USB (HOST) port on front panel of DVR. Refer to [START] and [END] of data on HDD and set start and end time of data to USB Media (Memory Stick or USB HDD). Select backup file size, and move to BACKUP and press [ENTER] Button to start copy.





System Status Messages
(1) If MEMORY STICK is not inserted :
- USB STORAGE IS CHECKING
- USB STORAGE IS NOT AVAILABLE
- RE-CONNECT THE USB STORAGE
- CONECT THE OTHER USB STORAGE

(2) When MEMORY STICK or USB HDD is recognized
- USB STORAGE IS CHECKING
- THERE IS A FREE SPACE ON STORAGE
- USB STORAGE IS AVAILABLE

(3) During Back-Up
- CHANGE WRITE PROTECT MODE
- START WRITING IN USB STORAGE
- FINISH WRITING IN USB STORAGE

(4) Error Message
- THERE IS A PROBLEM ON USB PORT (If USB PORT fails to work properly)
- USB STORAGE IS FULL (When USB is full)
- FILE SYSTEM IS NOT SUPPORTED (If File System is not supported)
- SIZE IS LARGER THAN FREE SIZE (If back-up size is larger than free space)

Back-Up procedure is the same as CDR/DVD Back-Up.
If Back-Up size is larger than 2GB, it creates several files. (It saves in 2GB chunks).

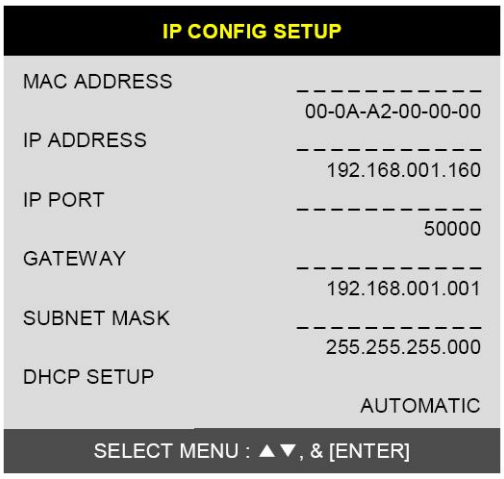
5-6. EXTERNAL DEVICE

Set parameters of external devices connected to DVR, like Ethernet, PTZ camera, RS-232C, etc. Use direction button to move to sub-menu and Press [ENTER] button to set.

1) TCP/IP SETUP

The TCP/IP function enables users to view live and recorded images via the Internet or network.

(1) IP CONFIG SETUP:
This shows the network information assigned to the DVR unit. If the DHCP setup is AUTOMATIC, the user can set the IP port only and if the DHCP setup status is MANUAL, user must set all parameters. For further details refer to the Remote Viewer software instructions.



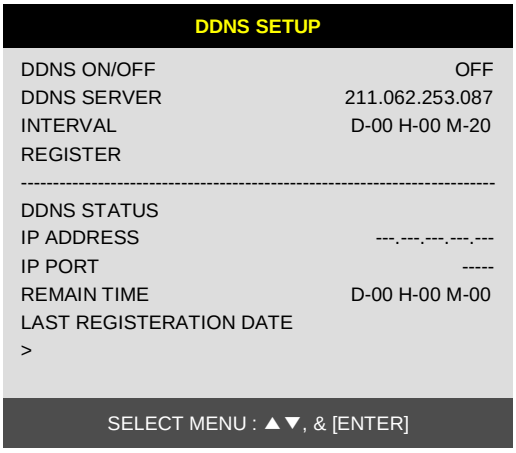
(2) DDNS SETUP :

- DDNS ON/OFF : Select if DDNS Function use

- DDNS SERVERS : IP Address of DDNS SERVER.
- INTERVAL : Registered time period to DDNS SERVER. Per D(Day) H(Hour) M(Minute)
- REGISTER : Once press [ENTER], It automatically registered.
- DDNS STATUS : present current status by "REGISTER OK" "REGISTER ERROR", "NOT REGISTER"

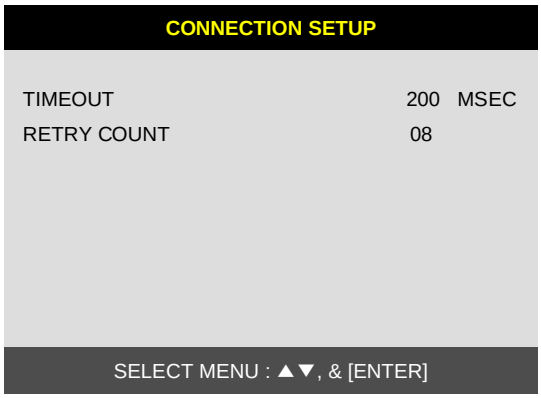
- IP ADDRESS : IP of last registered DVR
- IP PORT : Port of last registered DVR
- REMAIN TIME : Remain time to next registration

- LAST REG... DATA : Last registered time



(3) CONNECTION SETUP :

- TIME OUT :
  Adjust TIMEOUT value properly to successfully access to DVMR unit via Internet line. If data transmission speed is high enough, leave TIMEOUT value as set by manufacturer (200 msec), and increase it if data ansmission via Internet line is relatively slow. Execute tracert (Tracing Route) in your PC for IP assigned to DVMR unit, and you can figure out how much TIMEOUT value increased.
- RETRY COUNT :
  Set the retry number of times for network connection.

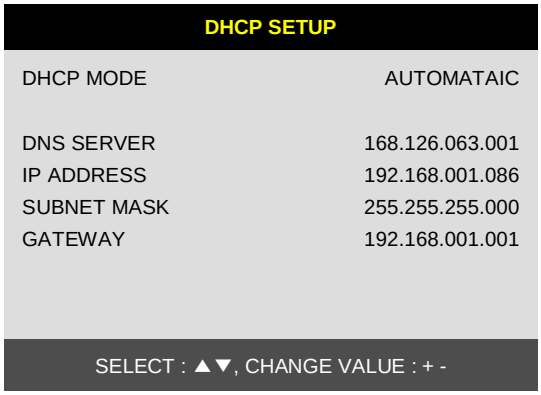


(4) DHCP SETUP :

- DHCP MODE : If user selects AUTOMATIC, IP automatically assigned.

  If user selects MANUAL, in IP CONFIG SETUP User selects it manually.

- DETECT IP : It only appears for AUTOMATIC. Once press [ENTER], it automatically starts IP Assignment.



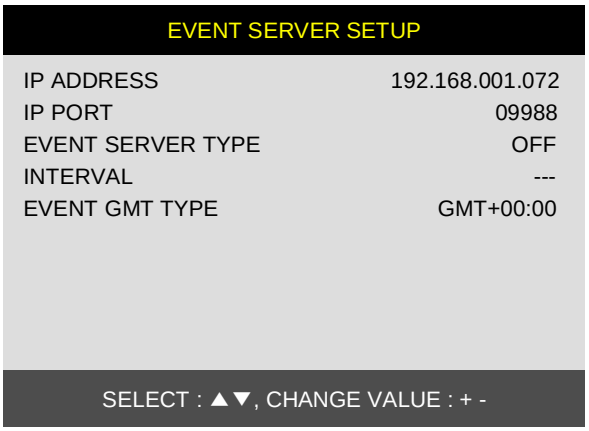
(5) EVENT SERVER SETUP :

IP ADDRESS : IP Address of PC that executes EVENT SERVER PROGRAM.
IP PORT : PORT of PC that executes EVENT SERVER PROGRAM
EVENT SERVER TYPE :
It is the way to transmit data to SERVER by "OFF", "EVENT" or "MINUTE“, when Event is triggered in DVR or by scheduled time.

"EVENT“: It transmits by the number of EVENT.
"MINUTE“: It transmits each scheduled time.

INTERVAL: If EVENT SERVER TYPE is "EVENT" User can select from 1~512.
If EVENT SERVER TYPE is "MINUTE“, User can select from 1 ~ 60 mins.

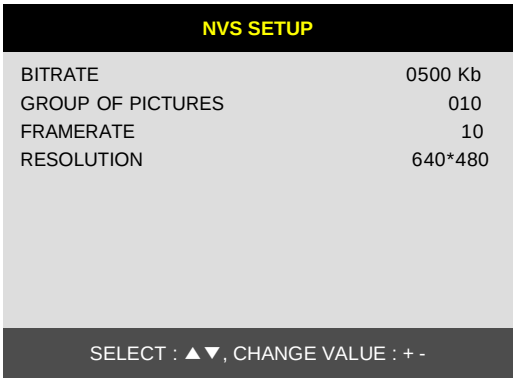
EVENT GMT TYPE : User can set currently installed location(DVR) of GMT.



(6) NVS SETUP

BITRATE :
DATA SIZE from NVS. The bigger it set, the better its quality, but sometimes motion is not smooth.
(Set Value : 100K ~ 2500K, can be adjusted by 50K)

GROUP OF PICTURES :
Image (I frame,P frame) from NVS. The bigger it set, the better its quality.



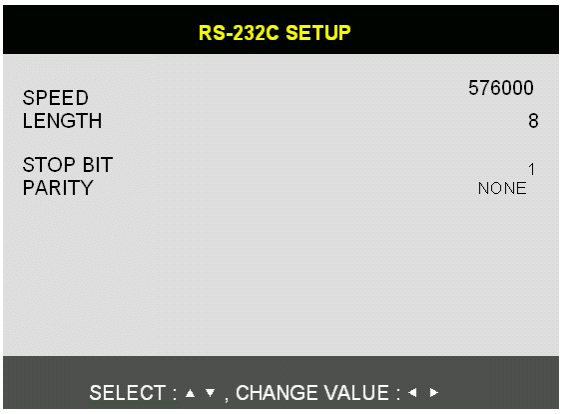
FRAMERATE :
DATA RATE from NVS. The bigger it set, the better its quality, but image quality is not good.

RESOLUTION :
DATA RESOLUTION from NVS. Such as 160*120, 320*240, 640*480.

* In order to work NVS properly, above value should be adjusted according to Network bandwidth

2) RS-232C SETUP
User can control the DVR via RS-232C port. Connect DVR to PC via RS-232C port and user can control DVR using keyboard of PC. This function is mainly for programmer who wants to control DVR as part of many devices connected to a PC system.

NOTE: THIS IS NOT CURRENTLY SUPPORTED.

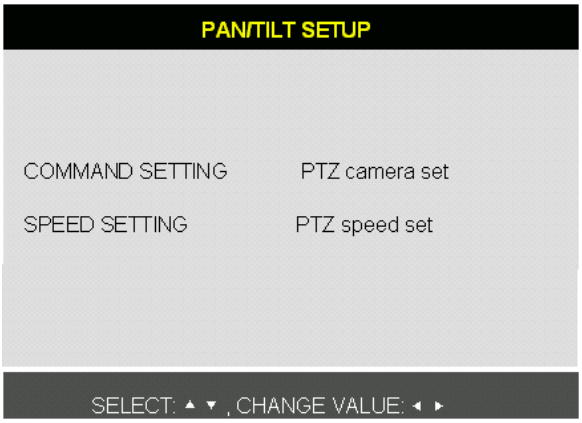


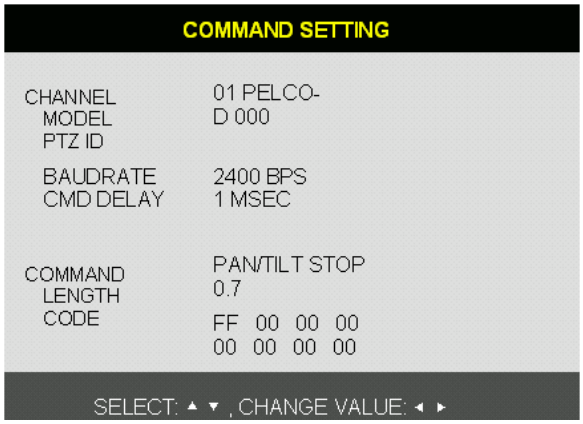
3) PAN/TILT SETUP

The DVR is capable of operating PTZ control via a number of protocols:

PELCO-D	DRX502A	HID2404
AECD-2000	VIDO AU-GXX	SCC-641
HMC 250	ACCUDOME	PELCO-P
YOKO	ON-D	DCS 230S
TBT	D-MAX	LG-MULTIX
MERIT-LI LN	SU320	SENSORMATIC
M-CONTROL	NOVUS-C1	NOVUS-C2
NEOTECH-A		

To access the PTZ set up screen, first enter **[SYSTEM MENU]** then **[EXTERNAL DEVICE]** menu followed by the **[PAN TILT SET UP]**.





[COMMAND SETTING]

Allows the input of PTZ protocol and respective system settings.(refer to camera manufacturers manual for further information).

[SPEED SETUP]

Allows the defining of operational speeds for PTZ controls. It may be helpful to reduce these settings when operating the DVR over a network, to reduce "over shoot" because of network delay.

Important Note: To operate PTZ controls always ensure the PTZ channel is set to full screen.

Initiating PTZ control

Using front panel: press **[SHIFT]+[PTZ]** together

Or

Using the remote: press **[PTZ]**

Or

Using the mouse: 'Double Click' right mouse button on screen to bring up mouse menu and right mouse click on PTZ icon.

In all cases a green PTZ "menu bar" will appear on the top left hand side of screen. This displays current function.

Setting up PTZ presets using front panel

1 Once on PTZ screen press **[11/GOTO]** button
2 Select required preset number using inner jog wheel
3 Press **[10/CLEAR]** to clear previous preset.
4 Using curser keys ← – → ↓ move camera to desired position
5 Press **[9/SET]** button

Warning : Do not press [9/SET] unless a clear/unused preset has previously been selected using the [11/GOTO] button, as this will overwrite previously saved presets.

Calling PTZ presets using front panel

1 Press **[11/GOTO]** button.
2 Select required preset number using 'inner jog' wheel.
3 Press **[11/GOTO]** button.

Setting up PTZ presets using mouse

1 Select icon on mouse menu.
2 Using directional arrows, move camera to desired position.
3 Move mouse over icon and using wheel change the top left hand menu bar to "SET PRESET".

4 Move mouse over icon and using wheel select preset number you wish to programme.

5 Press Set icon to save preset – “SET PRESET” will flash momentarily confirming save.

Calling PTZ presets using mouse

1 Move mouse over on and using wheel change the top left hand menu bar to Goto

2 Press button on mouse menu to select Preset number

3 Press to call selected preset

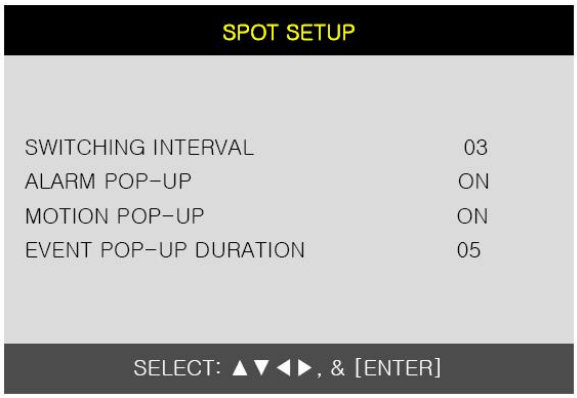
Operating PTZ via remote control

The supplied remote offers limited PTZ functionality. The curser key will offer pan and tilt control however the calling of presets is not possible. The PTZ menu can be scrolled using the **[+]** key and selecting using **[OK].**

It should be noted that the DVR offers basic PTZ functionality over a number of protocols. However if complete control is required then a PTZ Keypad, appropriate to the camera being used, should be employed.

Calling Dome Tours etc. will depend on the preset code allocated to the specific dome eg. PTZ300 = 51preset. Refer to cameras manual for further guidance.

4) SPOT MONITOR SETUP



1) SWITCHING INTERVAL
Channel switching time (1 sec. ~ 99 secs.)

2) ALARM POP-UP
Set ON to show screen pop-up on Alarm

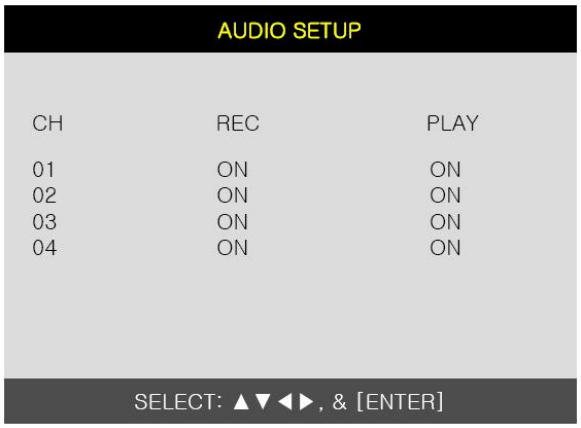
3) MOTION POP-UP
Set ON to show screen pop-up on Motion

4) EVENT POP-UP DURATION
Set DURATION time of Alarm or Motion Event (1 sec ~ 99 secs.)

If events (MOTION or ALARM) happen on several channel at the same time, channel No. 1 has the first priority to pop up. For example, if events happen on channel No. 1, channel No. 2 and channel No. 4 at the same time, channel No. 1 pops up. If the motion disappears on channel No. 1, then channel No. 2 pops up for the duration that you set. However, even though motion happens on channel No. 1again within the duration, channel No. 2 still displays. If motion on channel No.1 keeps on going even after the duration, channel No. 1 pops up again.

5) AUDIO SETUP

Use direction button to move to channel and press [ENTER] button to set (ON/OFF).



1) REC
   a) ON: Record with AUDIO
   b) OFF: Record without AUDIO

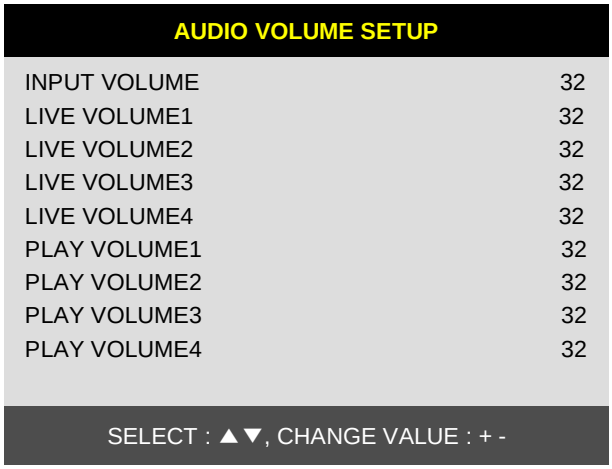
2) PLAY
   a) ON: Audio on playback
   b) OFF: No Audio on playback

6) AUDIO VOLUME SETUP

INPUT VOLUME: Adjust VOLUME of Recorded AUDIO

LIVE VOLUME1~4: Adjust VOLUME of LIVE per channel.

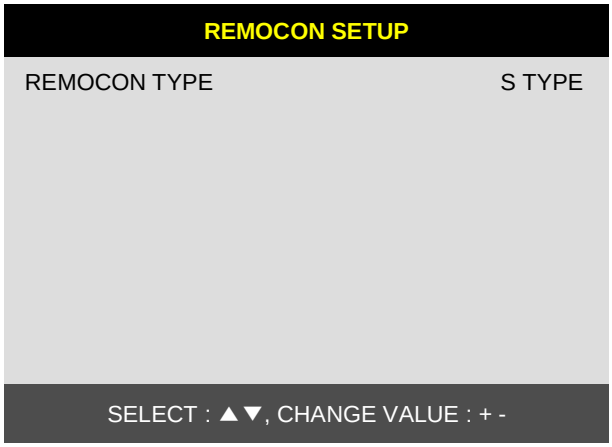
PLAY VOLUME1~4: Adjust VOLUME of PLAY per channel.



7) REMOCON SETUP

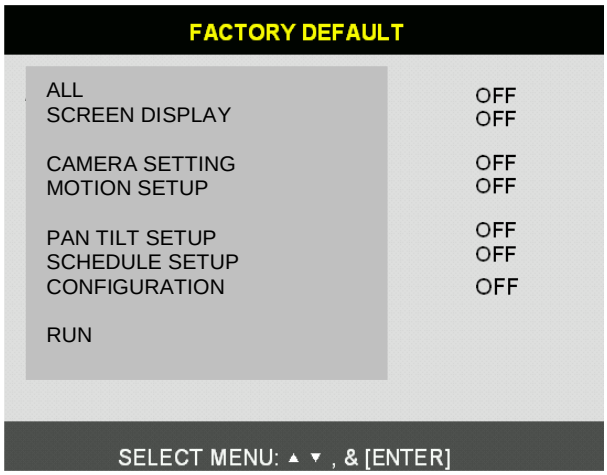
REMOCON TYPE: User use it to operate many DVRs installed at the same site and select each different TYPE.

N TYPE, S TYPE, U TYPE 1 ~ U TYPE 6: Total 8 TYPE Selectable.



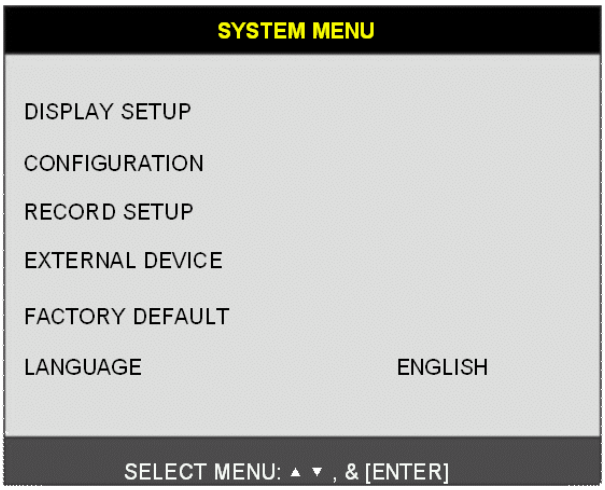
5-7. FACTORY DEFAULT

Reset all system parameters as per manufacturer's settings. Use this option when adding a new HDD or following problems with changes made to system. Use direction button to move and Press [ENTER] button to change parameters. Then select RUN, Press [ENTER] button for actual Factory Default setting.



5-8. LANGUAGE SETUP

The menu can be displayed in a number of languages. Press [ENTER] button to select language.



CHAP. 6 Network Setup

6-1. DVR Network Configuration

Please call your Internet provider to identify what type of service they are providing for you. You will need to know the following;

Upload speed – For your own knowledge for expected frame rates
Download speed – For your own knowledge for expected frame rates
Addressing – For determining the addressing method you will need to make
Router On Site – For connecting to the outside world

NOTE: For remote viewing we recommend using a Broadband ADSL connection with an external I.P address (supplied by your Internet provider). You will probably need to install a modem/router for Internet connection sharing and remote access.

PLEASE verify Internet access after installing any new equipment (routers, switches, modems, etc.). If possible, use a PC on the network to verify that an Internet connection can be made and that all current configurations on any equipment are up and working properly. Do this before doing ANY configurations with the DVR. We are assuming that your current equipment is configured properly for Internet access.

PC's TCP/IP Setting

Before configuring the DVR, please fill out the information below if applicable;

Choose any PC on your network and determine its TCP/IP settings;

IP Address: _____ (ex.192.168.1.5)

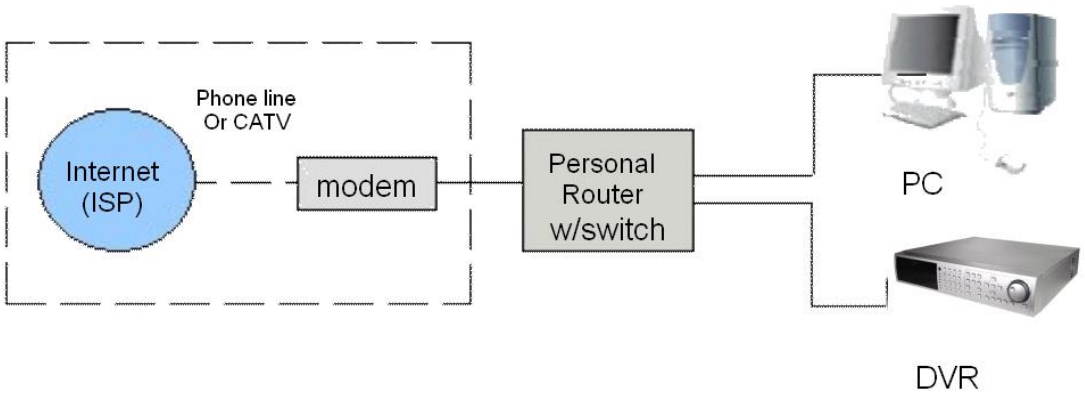
Subnet Mask: _____ (ex. 255.255.255.0)

Default Gateway: _____ (ex.192.168.1.1)

The following pages containing several network scenarios will clarify the network setup of the DVR; follow the instructions for configuring and accessing your DVR via TCP/IP.

1) Static I.P Address from an Internet Service Provider

Configure the DVR to operate with a modem router.



Configure the DVR as follows:

a. It is assumed you have a PC working on Broadband Internet.
b. Check IP address in P.C and record IP Address, Subnet Mask & Gateway Address.
Example: IP Address **192.168.1**.100 Subnet: **255.255.255**.000 Gateway: **192.168.1**.1
c. Connect LAN cable from router to DVR.
d. Assign DVR a private IP address Example : **192.168.001**.105
You need to assign the DVR an IP address similar to PC. The IP address you assign must be unique but the first three levels must match your local network. When configuring the DVR's IP address information, the version of firmware within the units may display the IP addresses differently. For simplicity 192.168.1.105 may have to be configured as 192.168.001.105

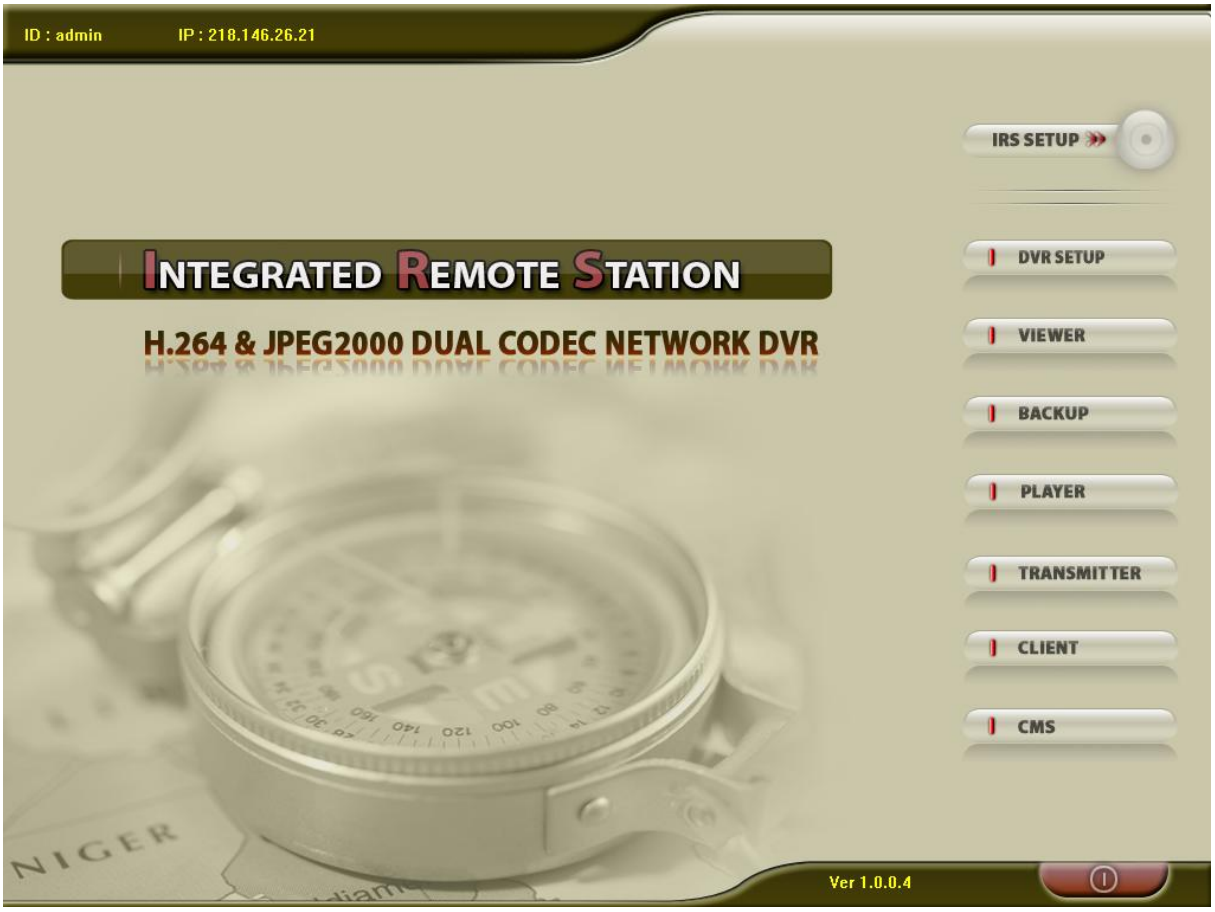
1. Enter the DVR Menu – Go to EXTERNAL DEVICE - Go to TCP/IP SETUP
2. Enter IP CONFIG SETUP
3. SET IP ADDRESS (see above), IP PORT: 50000, GATEWAY 192.168.1.1(example) (Router base address), SUBNET MASK: 255.255.255.000 (example) - Assign the DVR the same exact subnet mask as your PC.
4. Please DO NOT configure MAC ADDRESS but set DHCP SETUP to MANUAL.
5. EXIT MENU.
6. Now turn Router off and on. This will take about one minute to reset.
7. Your DVR is now ready for access via the local PC using the IRS Software. Refer to your modem/router manual for instructions on how to configure it to allow incoming Internet access.
8. If you fail to access DVR check all steps again.
9. If access speed is too slow and connection fails after access then:-
Go into MENU – EXTERNAL DEVICE – TCP/IP SETUP – CONNECTION SETUP
Increase TIMEOUT value if Internet line too slow. You can estimate minimum speed by going into your PC DOS Command Mode and executing TRACERT on the DVR IP address. Now add together all msec values displayed and use this as a base level.

Dynamic IP Address from an Internet Service Provider

Customers using a dynamic I.P address on their Broadband connection are advised to source a modem/router supporting “Dynamic DNS” within its firmware and to refer to the instructions provided with that router in order to configure that service.

CHAP 7. IRS (Integrated Remote Station)

MAIN INTERFACE



IRS SETUP Inputs Information for IRS network connection.

DVR SETUP Changes DVR setting over a network.

VIEWER Enables to show live image display.

BACKUP Enables to back up recorded images in DVR to your PC.

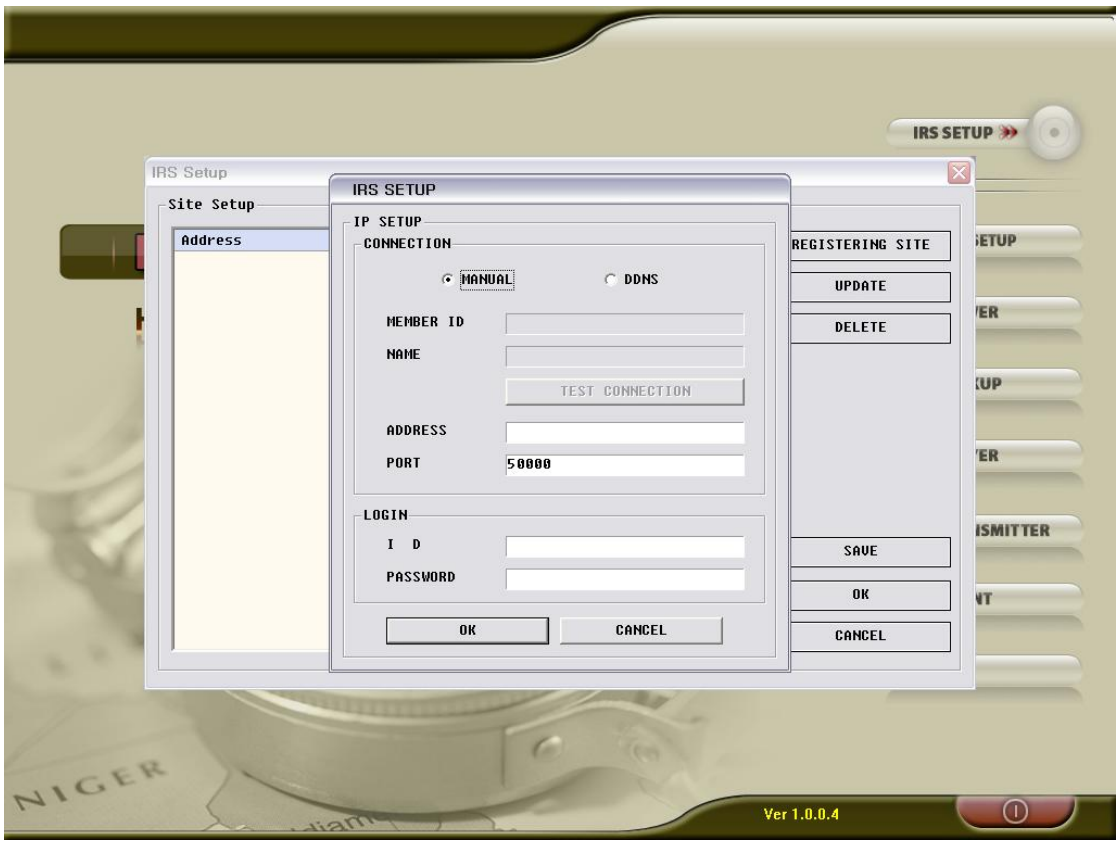
PLAYER Enables to back up recorded images on your PC. (AJP file)

TRANSMITER Enables to control DVR using virtual key like controlling actual DVR remotely.

CLIENT Enables to control LIVE, PTZ control, Playback in DVR remotely.

CMS Enables to have multi access for showing live images of many DVRs. (Additionally, enables to search and show recorded image display for one DVR.)

7-1. IRS SETUP



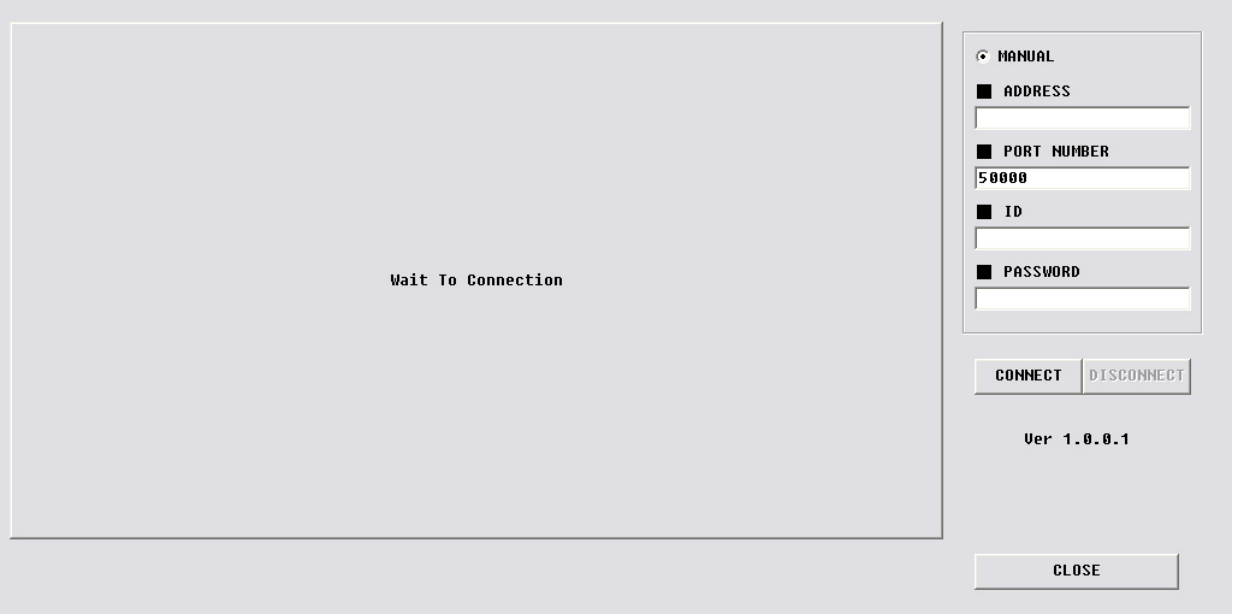
MANUAL Select “Manual” to input IP address and port number manually.
DDNS Select “DDNS” to use IP address and port number that you already registered in DDNS Server.

MEMBER ID Input member ID that you registered in DDNS Server.
NAME Input DVR name that you registered in DDNS Server.

ADDRESS Input IP address manually.
PORT Input Port number manually.

LOGIN
ID Input DVR ID which has been set in DVR already. (Input ‘admin’.)
Password Input password of DVR.

7-2. DVR SETUP



User can change some settings of DVR listed below over a network.
(Active Camera, Alarm, Buzzer, Interval, Password, Record Configuration, Record Schedule)

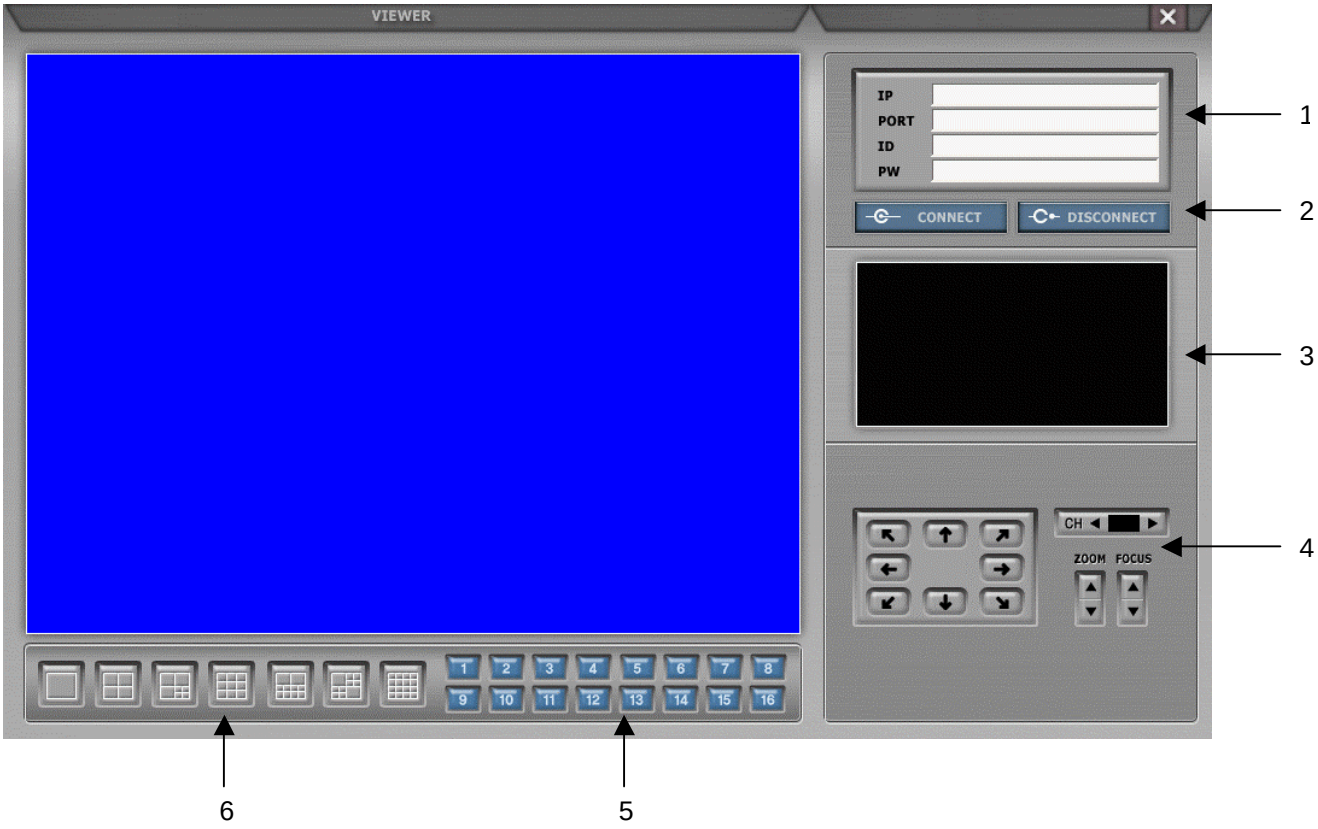
MANUAL Input IP address and port number of DVR manually.

ADDRESS Input IP address of DVR manually.
PORT NUMBER Input port number of DVR manually.

LOGIN
ID Input DVR ID which has been set in DVR already. (Input 'admin'.)
PASSWORD Input password of DVR.

CLOSE Click "CLOSE" to exit.

7-3. VIEWER



1. **DVR connection setup** : Input network information to connect.
   (IP / PORT / ID / PW)

2. **Network Connection**
   a) CONNECT : Click this button to connect to DVR & see live view over a network.
   b) DISCONNECT : Click this button to disconnect.

3. **System Information** : Displays connection status and operating Information.

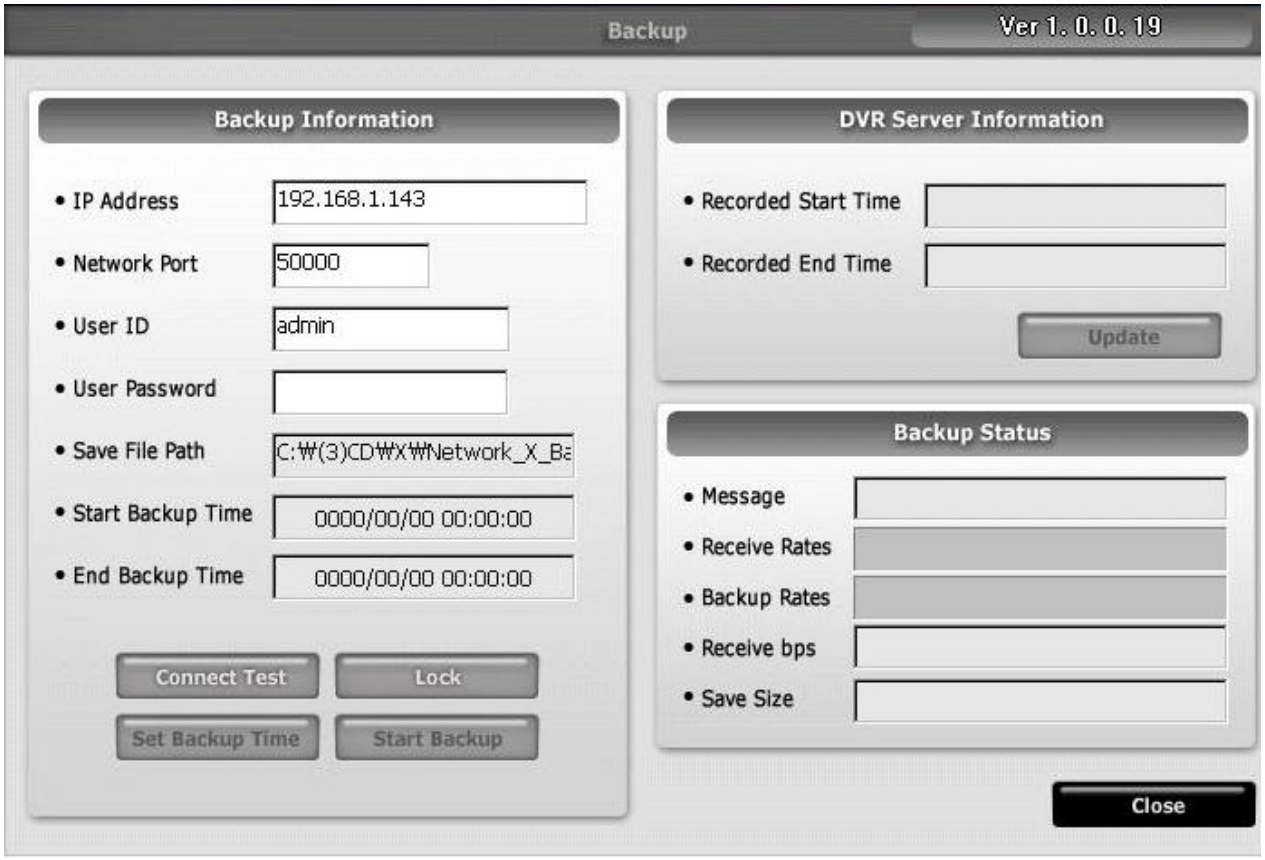
4. **PTZ Control** : Command PTZ Camera connected to DVR remotely.
   (To command PTZ remotely,User must complete PTZ setting in DVR)

5. **Channel button** : Selects ch that displays in full screen.

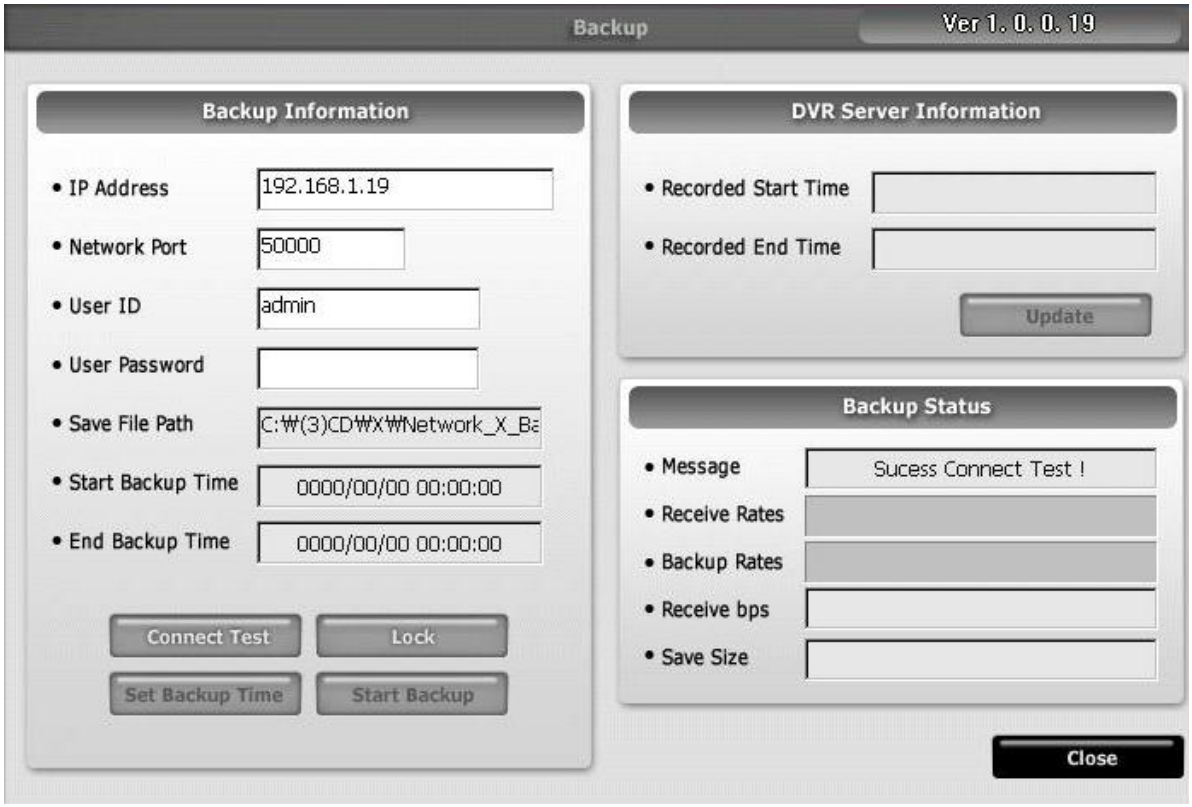
6. **Screen division** : User can select screen division.

7-4. BACKUP

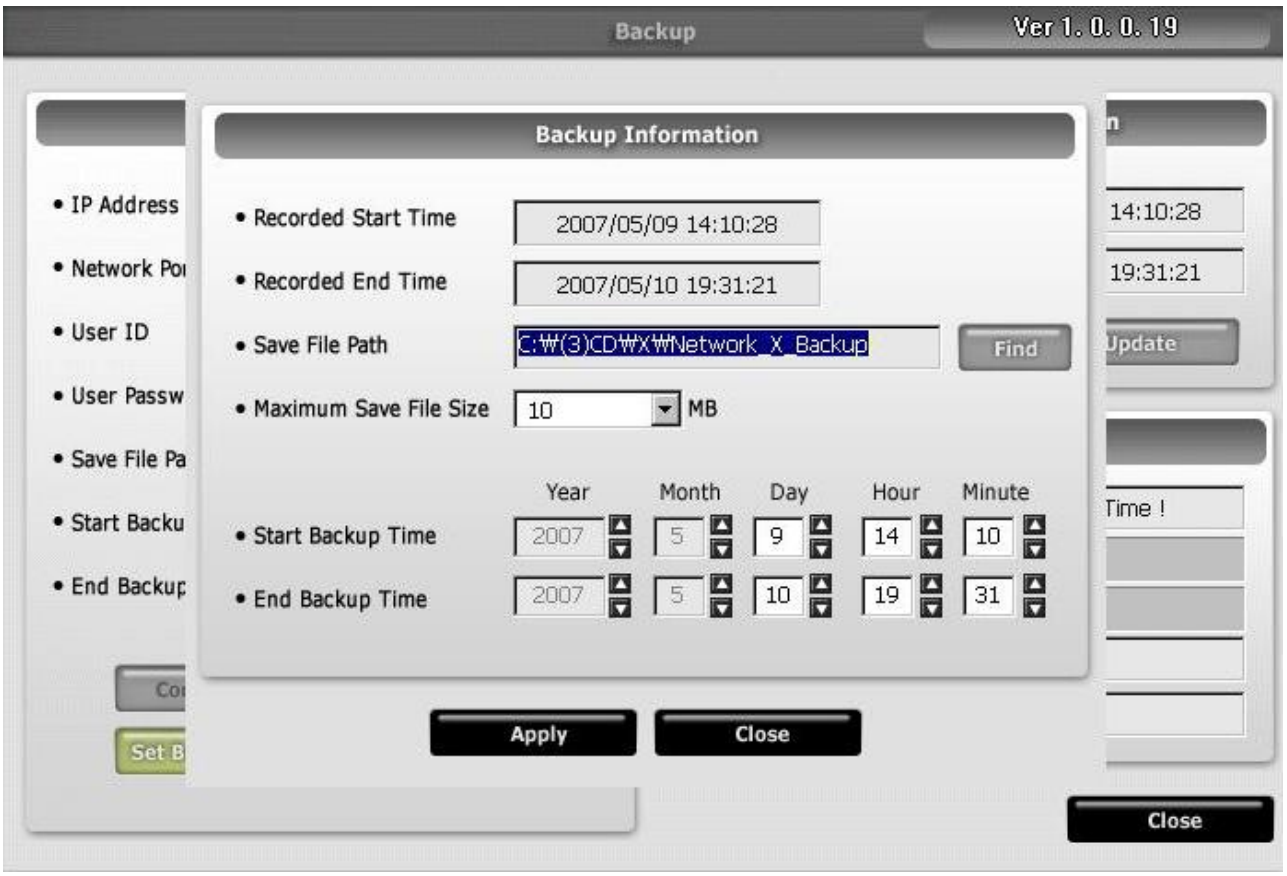
1) To execute BACKUP, input IP Address & Port and click ‘Connect Test’ button.



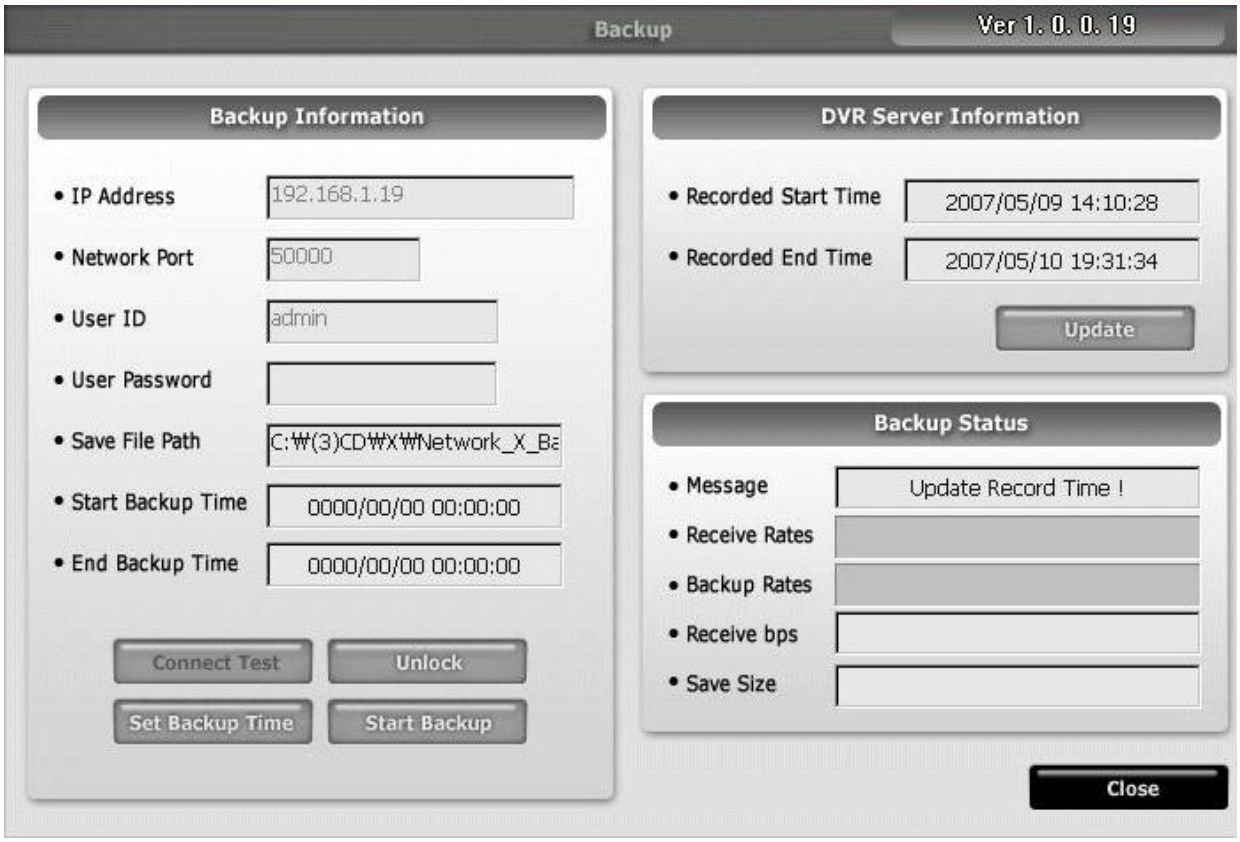
2) After Connect Test is done, you can see ‘Success Connect Test!’ message. Then,click ‘lock’ button and click ‘Set Backup Time’ button.



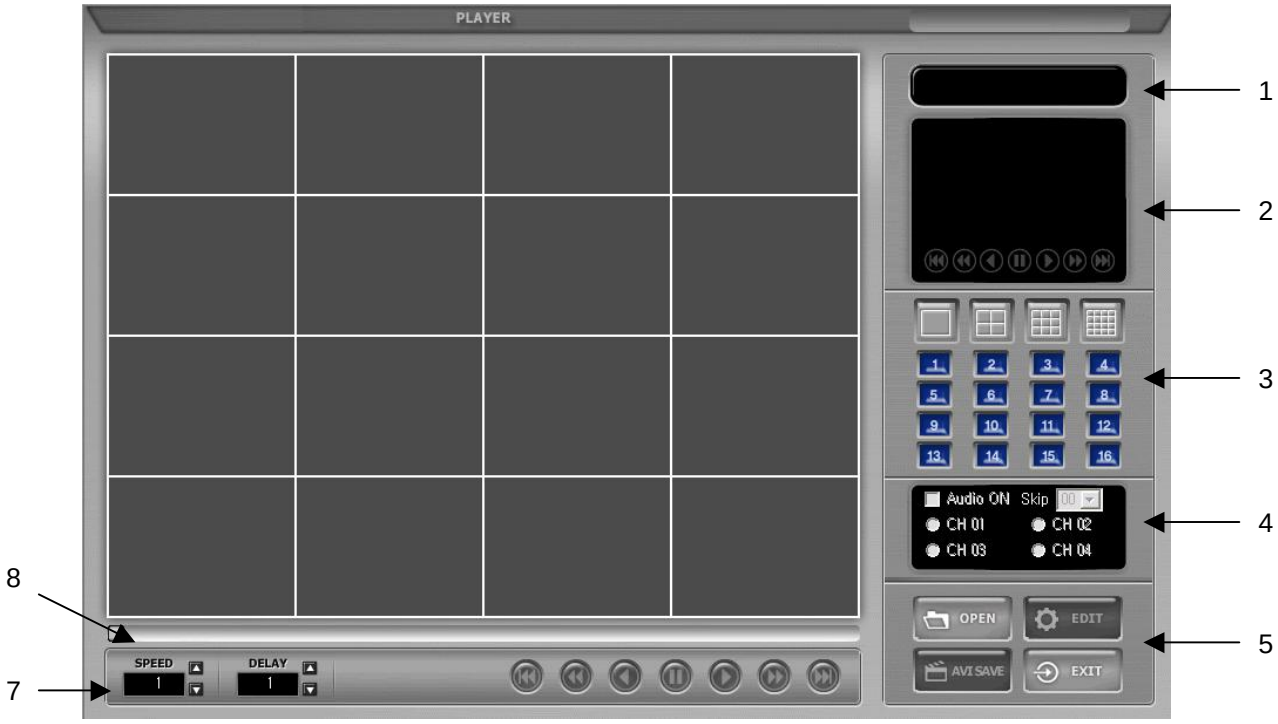
3) Now you set ‘Start Time’, ‘End Time’, ‘Save File Path’, ‘File Size’ and click ‘Apply’.



4) After finishing time setting, click ‘Start Backup’ to start backup. Then, you can see the backup on the path that you chose.



7-5. PLAYER



1. **Time Display** : Displays current time.

2. **Recorded data display** : Displays start time & end time of recorded data.
   Also, displays operating status during playback.

3. **Screen display** : Selects full screen mode or split mode and displays full screen for each ch.

4. **Audio** : Set Audio On/Off.

5. **Function buttons**
   a) OPEN : Selects bakuped file.(AJP File)
   b) EDIT : Enables to edit backup image,save and print.
   d) AVI SAVE : Save backup images in AVI file format.
   c) EXIT : Ends backup player.

6. **Operation buttons** : Search for recorded data.
   a) Go to the beginning of recorded data and play.
   b) Fast backward playback.
   c) Backward playback.
   d) Pause.
   e) Forward playback.
   f) Fast forward playback.
   g) Go to the end of recorded data and play.

7. **Playback speed setting button** : Able to adjust playback spped by using upper/ lower buttons.
   a) SPEED : decides playback speed.(1/4X,1/2X,1X,2X,4X,8X,16X)
   b) DELAY : adjusts playback interval. The higher, the slower.(1, 2, 4, 8, 16, 32)

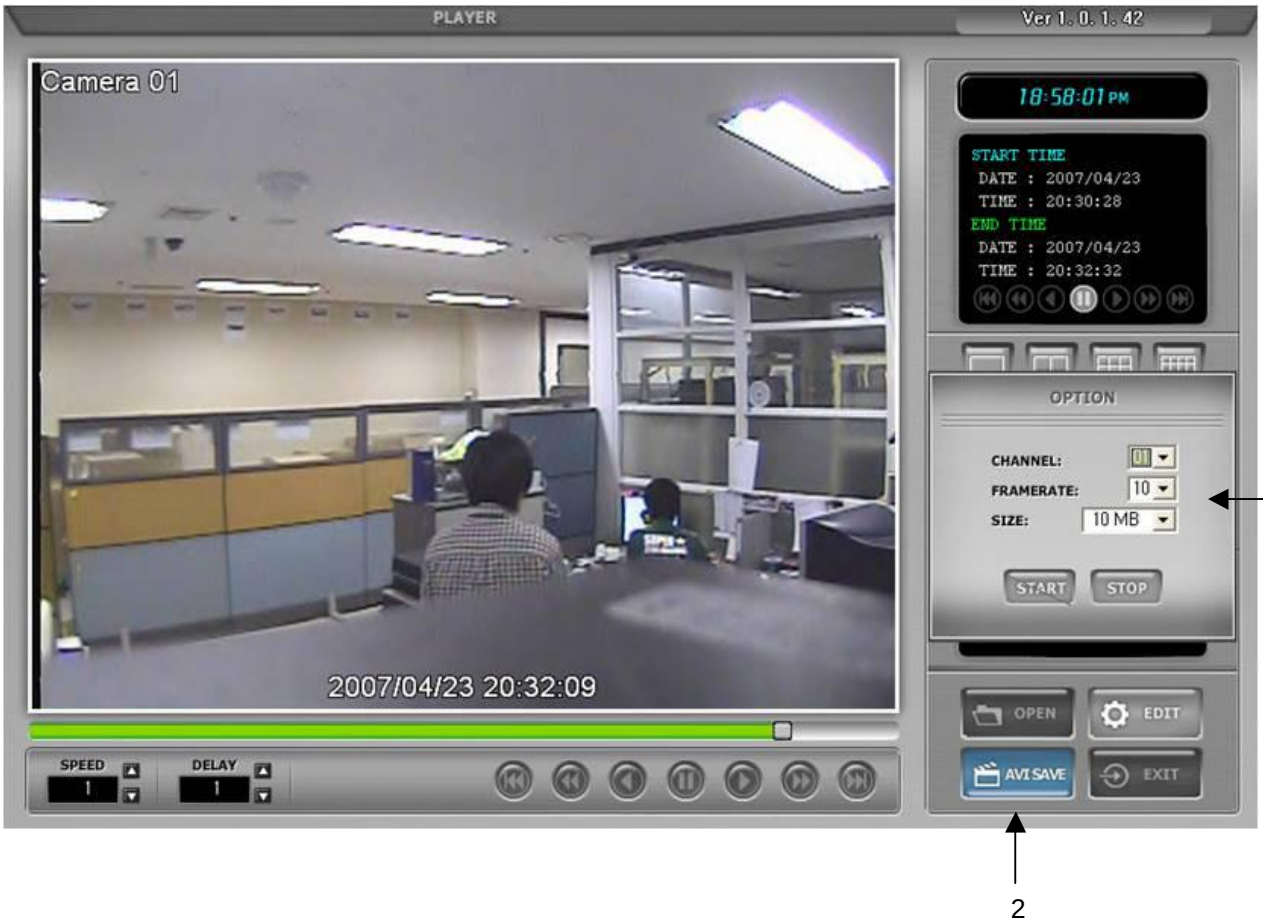
8. **Play bar :** Enables to search recorded data by using this bar.

Image EDIT

1. **EDIT TOOL :** User can adjust color tone of copied images using these buttons.
   - Contrast
     : make bright part of image brighter and dark part of image darker
     : To reduce light and shade, lower contrast a little
   - Brightness
     : make an image brighter
     : make an image darker
   - Sharpness
     : gives sharp-edge effect
   - Blur
     : make an image soft.
   - Operation buttons
     : saves data in JPEG file format.
     It is saved in the folder where player is installed.
     : User can print current image selected.

2. **EDIT :** Return to player mode.

AVI SAVE



1. **OPTION :** Used to save data in AVI file format.
   - CHANNEL : Selects channel.
   - FRAMERATE : Decides frames per second of data to be saved.
   - SIZE : Decides the size of data to be saved automatically.
   - START : Starts saving.
   - STOP : Stops saving. Once stopped, 'C:\WEB_BACKUP' folder is opened automatically.

2. **AVI SAVE :** Opens 'option' setting to start AVI saving. Closes 'option' setting after finishing AVI saving and go back to player mode.

7-6. TRANSMITTER

1. **DVR Connection Setting** : Inputs information for DVR Network connection .
   Check 'IP / PORT / ID / PW' information.

2. **Network Connection**
   a) CONNECT : Network connection to DVR. (User can see live image of DVR.)
   b) DISCONNECT : Network disconnection from DVR.
   c) SETUP : User can change or set 'NVS Setup' of DVR System Menu.

3. **System Information** : Displays DVR Connection and System Operation Information.

4. **PTZ Control** : User can control PTZ camera connected to DVR remotely.
   (To control PTZ remotely, user must set PTZ setting in DVR in advance.)

5. **DVR Virtual Key** : To use Virtual Key that works the same function as DVR to control DVR remotely.

   a) Bitrate: shows received data from network. Please refer to "set up" in Network Connection.
   b) AUDIO: it currently does not support. It will be supported soon.

SETUP (NVS Setup)

Bitrate(Kb/s)
DATA SIZE from NVS. The bigger it set, the better its quality. But sometimes image is not smooth.
(Set Value : 100Kb ~ 2500Kb, can be adjusted by 50K)

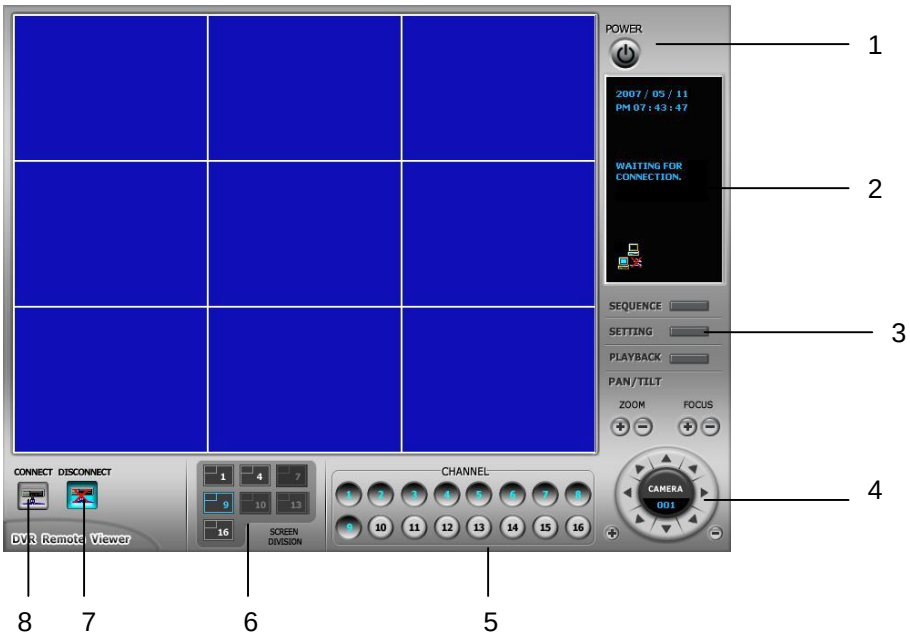
GOP
Image (I frame, P frame) from NVS. The bigger it set, the better its quality.

Frame Rate
DATA RATE from NVS. The bigger it set, the better its movement. But sometimes image is not smooth.

Resolution
DATA RESOLUTION from NVS. Such as 160*120, 320*240, 640*480.

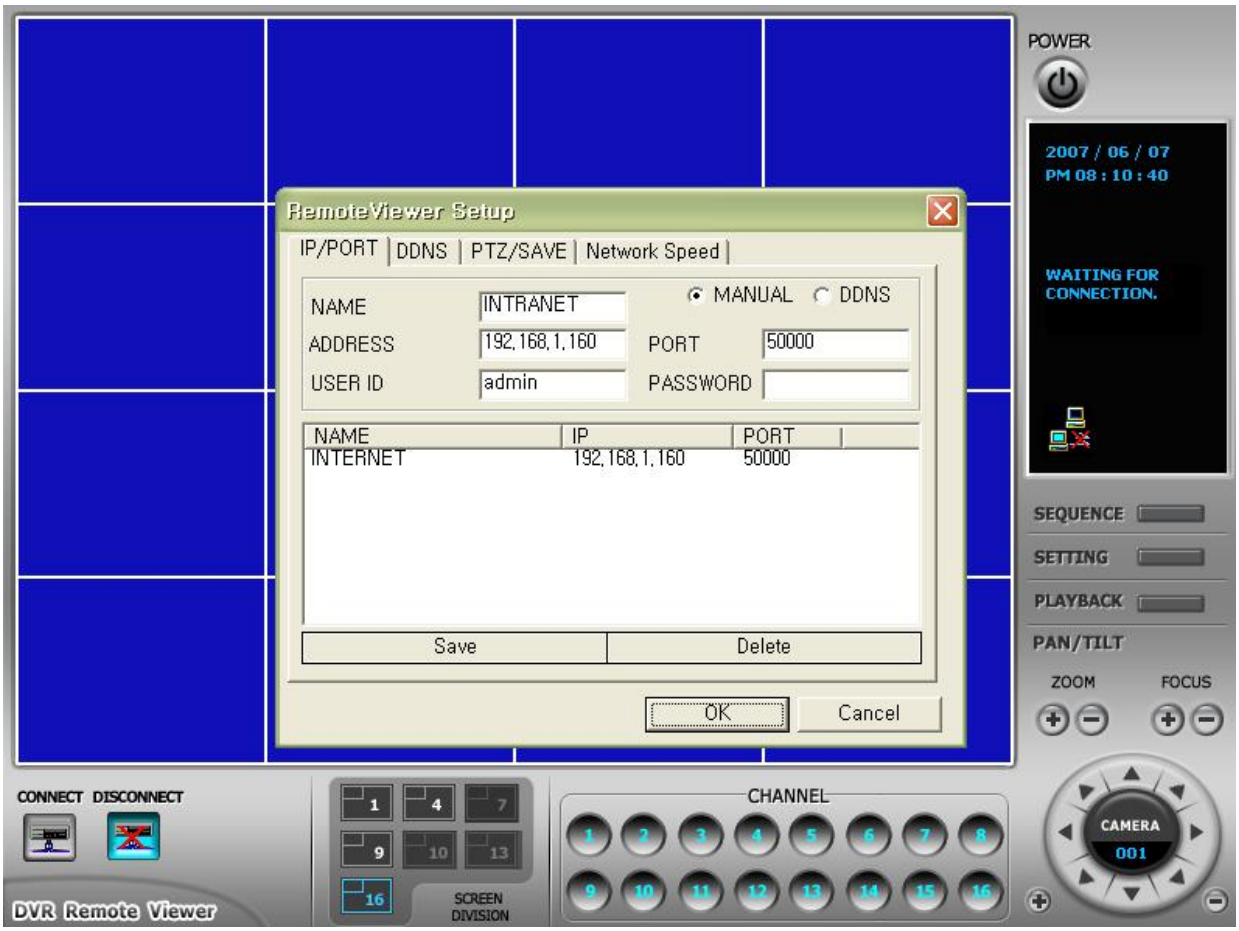
* In order to work NVS properly, above value should be adjusted according to Network Condition.
* Please refer to 'bitrate' displayed in TRANSMITTER when user set.

7-7. CLIENT



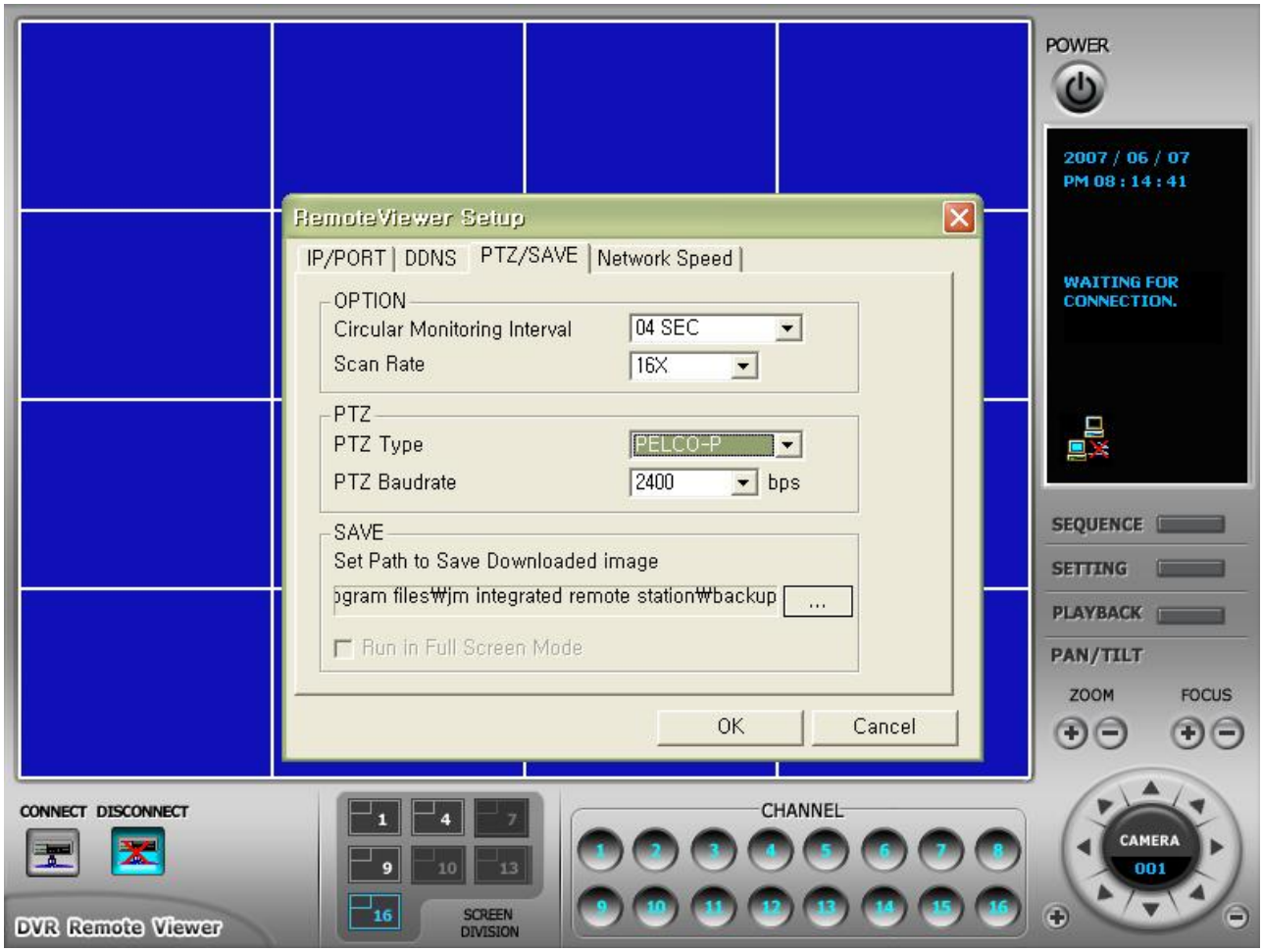
1. **Power button** : Press the Power switch to exit the program. Please disconnect the live feed before powering off the software
2. **Status window** : Display's the current time and date based. The date is in the format : Year/Month/Day.
   You will also see the status of your connection.
3. **Setting, Playback, and Sequence buttons** :
   a) Setting : Enables the software configuration screen.
   b) Playback : Enables the remote playback screen.
   c) Sequence : When in single channel view, hitting the sequence button will sequence through all active channels at a speed specified in the settings menu.
4. **PTZ control** : You can control a PTZ camera via the software with these controls.
   a) First, you must input or configure the specific PTZ protocol into the software in order to communicate with the PTZ device.
   b) When you press any of the controls for the PTZ, please press and hold the button for 1-2 seconds per instance to compensate for the data transmission rate. If you do not and instead simply click the PTZ buttons, you may get undesired results
   c) The plus and minus buttons send the PTZ commands to the corresponding PTZ camera ID.
5. **Channel number button** : Select the channel that you want to view based on what Screen Division view is enabled.
6. **Screen Division button** : Select how many channels to view simultaneously (single,4-split,9-split, or 16-split). When you select a view you will see the Channel Numbers highlighted which determine what channels are currently being viewed.
7. **Disconnect button** : Press this button to disconnect from the DVR unit. Then you may power off the software.
8. **Connect button** : Press the Connect button to view the live images from the DVR. These are the same images being displayed on the monitor of the DVR, with a delay depending on your Internet connection at both the DVR location and from where you're currently accessing.

IP/PORT Setting Screen



MANUAL	Input IP address and PORT manually
DDNS	Receive IP address and PORT from DDNS Server. For further information of DDNS, please contact your vendor.
Name	Name of IP address on the list.
Address	Input IP address which is set on DVR
PORT	Input PORT which is set on DVR
ID	Input ID which is set on DVR. (Please input 'admin'.)
Password	Input password which is set on DVR
IP List	It shows IP list which user input manually.
Select Button	Select IP and PORT on the list.
Save Button	Save IP and PORT on the list.
Delete Button	Delete IP and PORT on the list.

PTZ/SAVE Setting Screen



Circular Monitoring Interval : This indicates the speed of the channels sequence when the SEQUENCE button is used from the main interface.

Scan Rate **:** Set speed of playback.

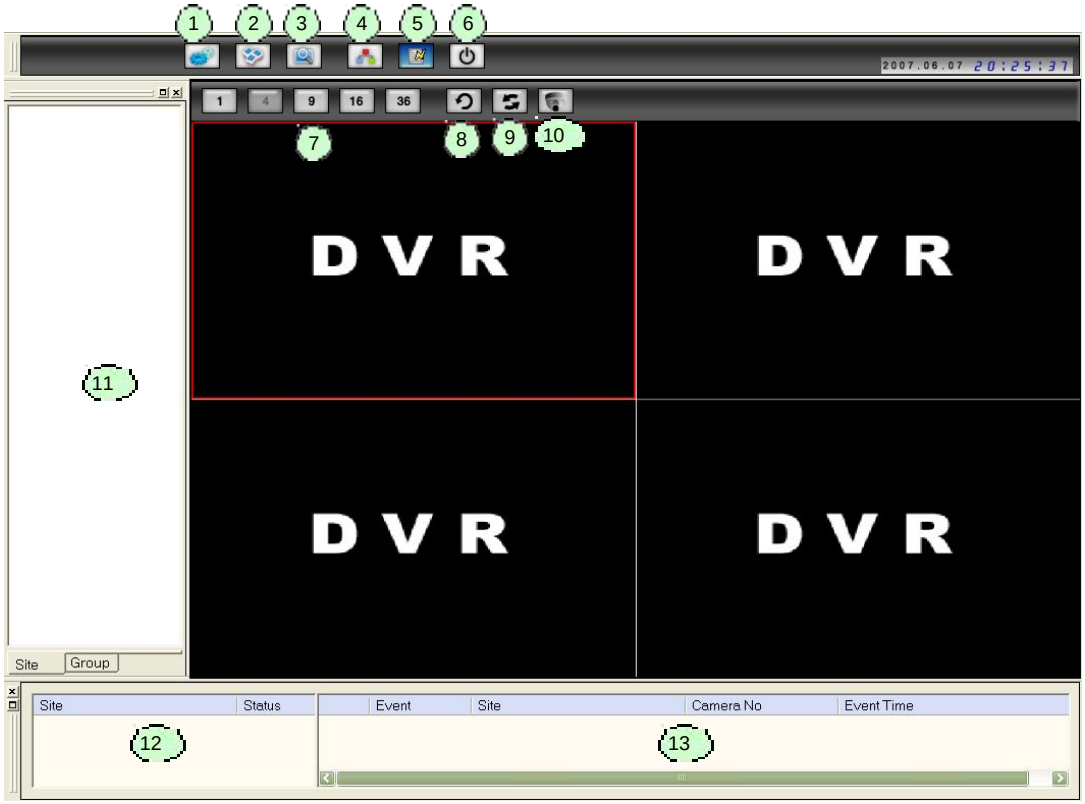
PTZ TYPE **:** Select PTZ camera which is connected to DVR.

PTZ Baud Rate : Enter the Baud Rate of your PTZ camera.

Set Path to Save Downloaded image : Determines the location and folder on your PC where the downloaded video clips are stored.

Run in full screen mode : When checked, this will enable the program to re-adjust the interface to completely fill your computer screen.

7-7 CMS



1 **CMS Setting** : CMS Setting. (User can set DVR Registration here for multi-access.)

2 **Group Setup** : Among multi-access DVRs, User can set a group of specific channels for live monitoring.

3 **Search** : Playback and search recorded image of one DVR.

4 **View Tree** : If No11 is not displayed,it will be displayed again.

5 **View Event** : If No 12 & 13 is not displayed, it will be displayed again.

6 **Exit** : Exit from CMS.

7 **Screen Division** : Set number of channels displayed in CMS.

8 **Rotation** : Sequence images.

9 **Auto Rotation** : Automatic image sequence (In 'CMS Setup', adjust Auto Change Value.)

10 **PTZ Control** : PTZ control.

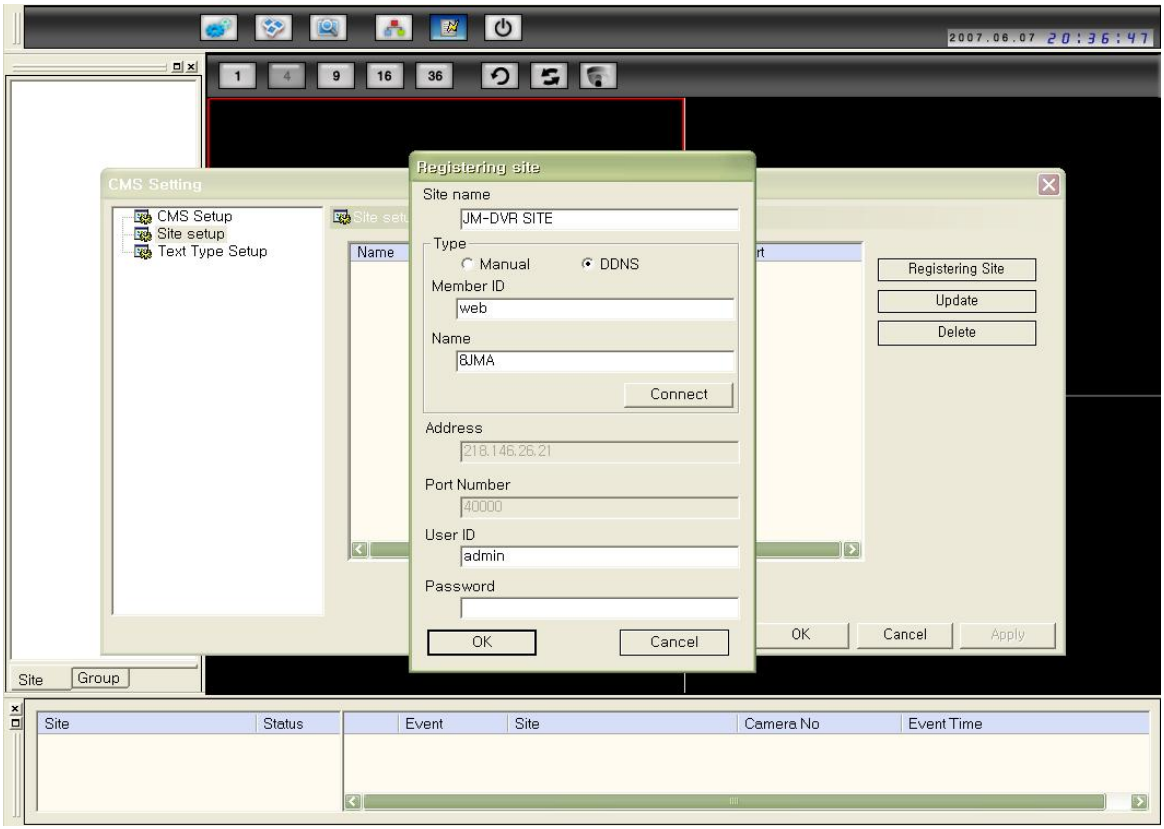
11 **DVR Information** : Displays multi-access DVR camera at Site or Group.

12 **Network Condition** : Displays network information of multi-access DVR.

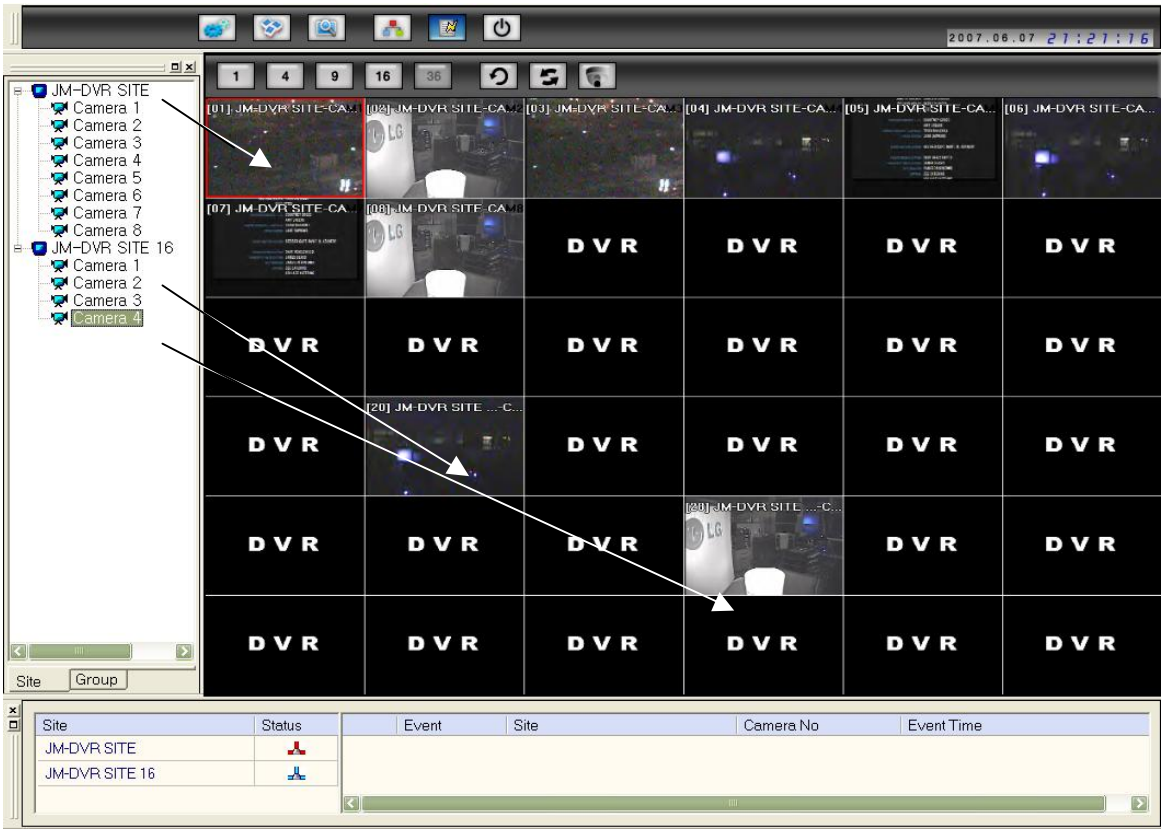
13 **DVR Event Information** : Displays event information of DVR.

DVR Registration and Screen Display

1) To connect DVR, from main screen select 'CMS Setting > Site setup > 'Registering Site', and then, register necessary information for DVR connection as below. (Registration is the same as 'IRS SETUP'.)

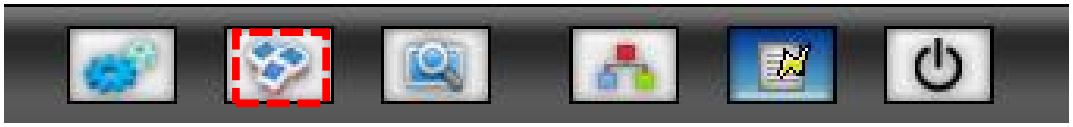


2) After registration, user can display specific channel or select whole site by dragging Mouse as below.

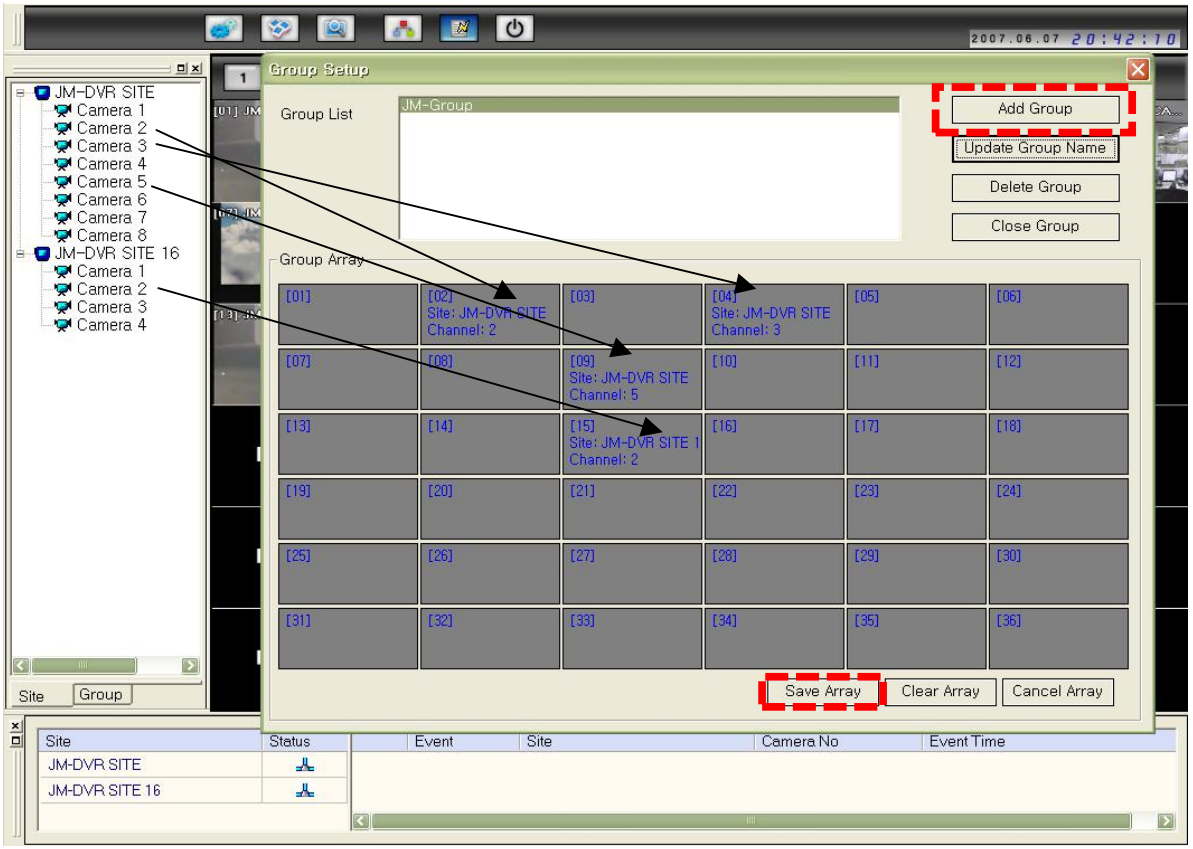


DVR Group Setup

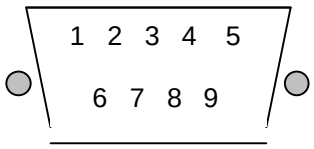
1) After finishing DVR registration, click ‘Group Setup’ in Main Screen.



2) Click ‘Add Group’ and input group name. Drag camera channel user wants as shown below, and set channel displays in Group and click ‘Save Array’ to setup group.



7. Programmer reference



RS-232C

1) Connector Pin Assignment

No		Description	No		Description
1	DCD	Data Carrier Detect	6	DSR	Data Set Ready
2	RxD	Receive Data	7	RTS	RS232C:Rx/Tx data
3	TxD	Transmit Data	8	CTS	RS232C:Rx/Tx data
4	DTR	Data Terminal Data	9		
5	GND	Signal Ground			

2) RS232 ASCII-CODE

The information regarding ASCII codes for programmers is only supplied as reference material and is not supported. We regret we cannot offer any assistance about issues concerning these commands nor can we guarantee the integrity of the information supplied.

The following table is based on the 16 channel DVR and all ASCII code is 1 Byte.

REC	'R'	DOWN	'J'	PTZ	'T'	KLOCK	'C'	CH5	'5'	CH12	'@'
STOP	'S'	LEFT	'H'	ZOOM	'Z'	ULOCK	'O'	CH6	'6'	CH13	'#'
PLAY	'P'	RIGHT	'K'	FRZ	'F'	QPLAY	'Y'	CH7	'7'	CH14	'$'
PAUSE	'A'	NEXT	'N'	MODE	'D'	CH1	'1'	CH8	'8'	CH15	'%'
Search	'E'	ENTER	0x0d	PIP	'I'	CH2	'2'	CH9	'9'	CH16	'^'
MENU	'M'	-	'<'	SEQ	'Q'	CH3	'3'	CH10	'0'		
UP	'U'	+	'>'	J.SHU	'L'	CH4	'4'	CH11	'!'		

Jog / Shuttle

When [ACTIVE] LED is on, Jog/Shuttle is ready to be activated by the commands below.

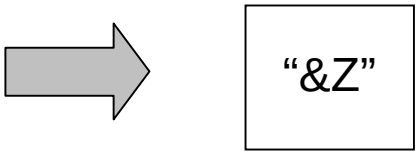
Shuttle 0 degree	"&>0"[enter]	Shuttle Left 10 degree	"&<1"[enter]
Shuttle Right 10 degree	"&>1"[enter]	Shuttle Left 20 degree	"&<2"[enter]
Shuttle Right 20 degree	"&>2"[enter]	Shuttle Left 30 degree	"&<3"[enter]
Shuttle Right 30 degree	"&>3"[enter]	Shuttle Left 40 degree	"&<4"[enter]
Shuttle Right 40 degree	"&>4"[enter]	Shuttle Left 50 degree	"&<5"[enter]
Shuttle Right 50 degree	"&>5"[enter]	Shuttle Left 60 degree	"&<6"[enter]
Shuttle Right 60 degree	"&>6"[enter]	Shuttle Left 70 degree	"&<7"[enter]
Shuttle Right 70 degree	"&>7"[enter]	Shuttle Left 80 degree	"&<8"[enter]
Jog Minus	"&-"[enter]	Jog Plus	"&+"[enter]

Shuttle: After inputting a command once, it will keep performing the command until next command received.

Jog: This is a one time operation command like a press button.

Key Release for PTZ function

power on , light on	“1”
power off , light off	“2”
iris open	“3”
iris close	“4”
focus near	“5”
focus far	“6”
zoom in	“7”
zoom out	“8”
set preset	“9”
clear preset	“0”
goto preset	“!”
auto scan	“@”
tilt up	“u”
tilt down	“j”
pan left	“h”
pan right	“k”



To stop transmitting the code to DVR via RS232.

1) Set preset

“T” → “U”, “J”, “H”, “K” (To move to required position) → “9” (set preset) →
“&Z” → “&+”,”&-“ (To set other preset point)

2) Clear preset

“T” → “0” → “&Z” → “&+”,”&-“ (To choose preset to delete) → “enter”

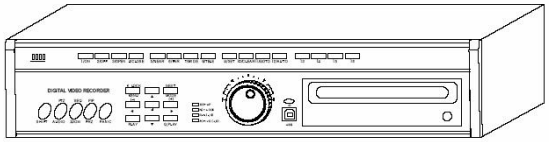
3) Goto preset

“T” → “!” → “&Z” → “&+”,”&-“ (To go to preset required) → “enter”

Reference

1. Functions where the OSD [xx] to the right of the function are not seen, pressing “1” or “2” will bring it up.
2. Operations such as ‘clear preset’ take effect after pressing the ‘0’ key causing the last preset to be deleted even though it may not be the desired action. Instead use the next key ‘N’ until ‘clear preset’ is up then choose the preset to be deleted followed by enter.
3. For units lacking a front panel jog shuttle the ‘15/F3’ and 16/F4’ ASCII front panel equivalent can be used.

CHAP. 9 Specifications



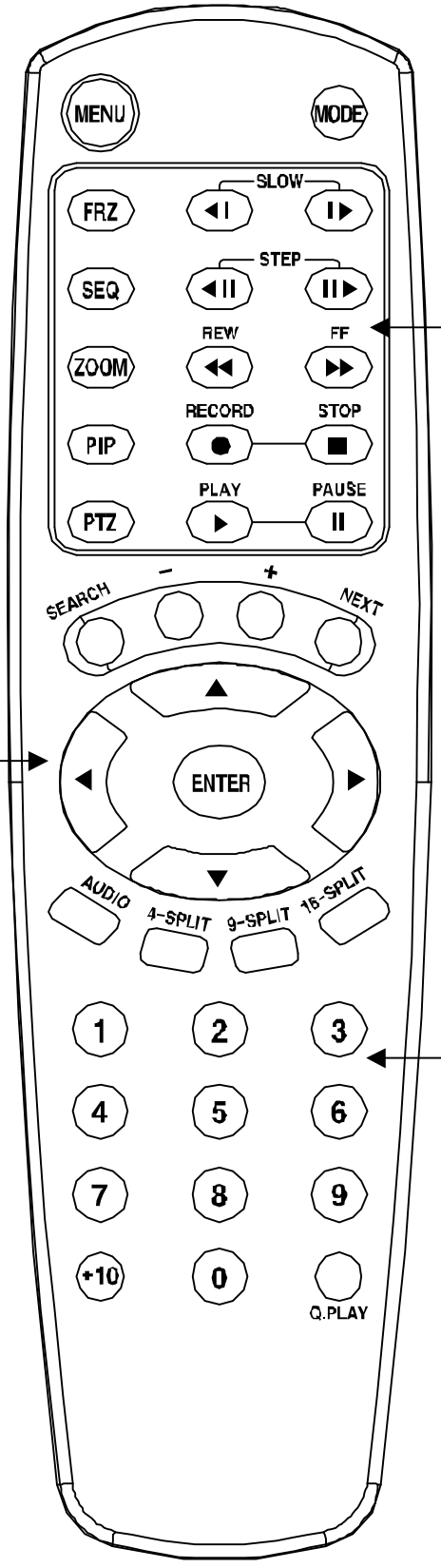
•The best picture quality in Playback (JPEG-2000)
•Real time live display on all channels
•8 channel video 240(200) ips recording capability •Triplex (Recording/Playback/Ethernet)
•Multi-language menu
•Remote monitoring and download through network
•Convenient search function with Jog-shuttle
•USB (Device) port for firmware upgrade
•Easy PTZ camera control by pre-assigned buttons
•Password Protection
•Remote Controller

Multiplex function			Triplex (Playback/Recording/Ethernet)
Storage Capacity	Internal	HDD	Up to 2 HDDs with no capacity limitation
		CD-R/DVD-R	For backup

Video	Inputs	Composite	8Ch
	Outputs	Composite	2Ch (Monitor/Spot Monitor)
		VGA	1Ch (Supporting TFT LCD Monitor/Option)
		Loop-through	8Ch
		Compression	JPEG-2000(Record), H264(Network)
		Comp. Rates (Image size fixed)	Basic Normal Enhanced Fine Super Fine
	Display Speed		Real Time Display
Record/Search	Record Mode		Schedule (Time, Motion, Alarm), Emergency
	Search Mode		Event Search,Date/Time,Search Bar(Jog/Shuttle)
	Record Speed (NTSC/PAL)		Full (120/100), Dual(240/200), Quad(480/400)
	Record Resolution (PAL)		Full (720/288), Dual(360x288), Quad(360x144)
Multi-language	English,Spanish,German,French,Italian,Russian,Dutch,Polish,Portuguese.		
Switching Interval			1 ~ 99 seconds selectable
Line Division Screen			1 / 4 / 9 split Digital Zoom, Freeze, PIP, SEQ, Event Popup
Alarm	Inputs		4 Alarms (NO/NC selectable in SETUP menu)
	Outputs		1 (NO/NC)
	Post Alarm		Duration of Alarm Output: 1 ~ 300 secs
Motion Detection			Area division: 16 x 12 / Detection 32 x 24
Network			Ethernet(TCP/IP), Remote Viewer provided
Backup			VCR,CD-R, DVD-R, Download via TCP/IP
PTZ Control			RS485, Key Control
Firmware Upgrade			USB port for firmware upgrade, CD-R/DVD-R
Serial Interface		RS485	For PTZ camera control
		RS232C	For operation using PC keyboard- not supported
Audio	Input		4Ch Microphone Input
	Output		1Ch Speaker Output
Power Requirements			DC 12v 6.67A adaptor
Weight			8.5Kg
Dimensions (Wide x Height x Depth)			436 x 396 x 88
Packing			600 x 520 x 180

CHAP. 10 Remocon Key Definition

1. NORMAL Type



MENU	Menu /Exit Menu
MODE	Screen Division / Change Mode
FRZ	Freeze
SEQ	SEQ
ZOOM	ZOOM
PIP	PIP (Picture in Picture)
PTZ	PTZ
◀I	Slow Backward Playback
I▶	Slow Forward Playback
◀II	1 frame rewind
II▶	1 frame forward
◀◀	Fast Backward Playback
▶▶	Fast Forward Playback
●	Emergency Recording
■	Stop Play / Exit
▶	PLAY
II	PAUSE

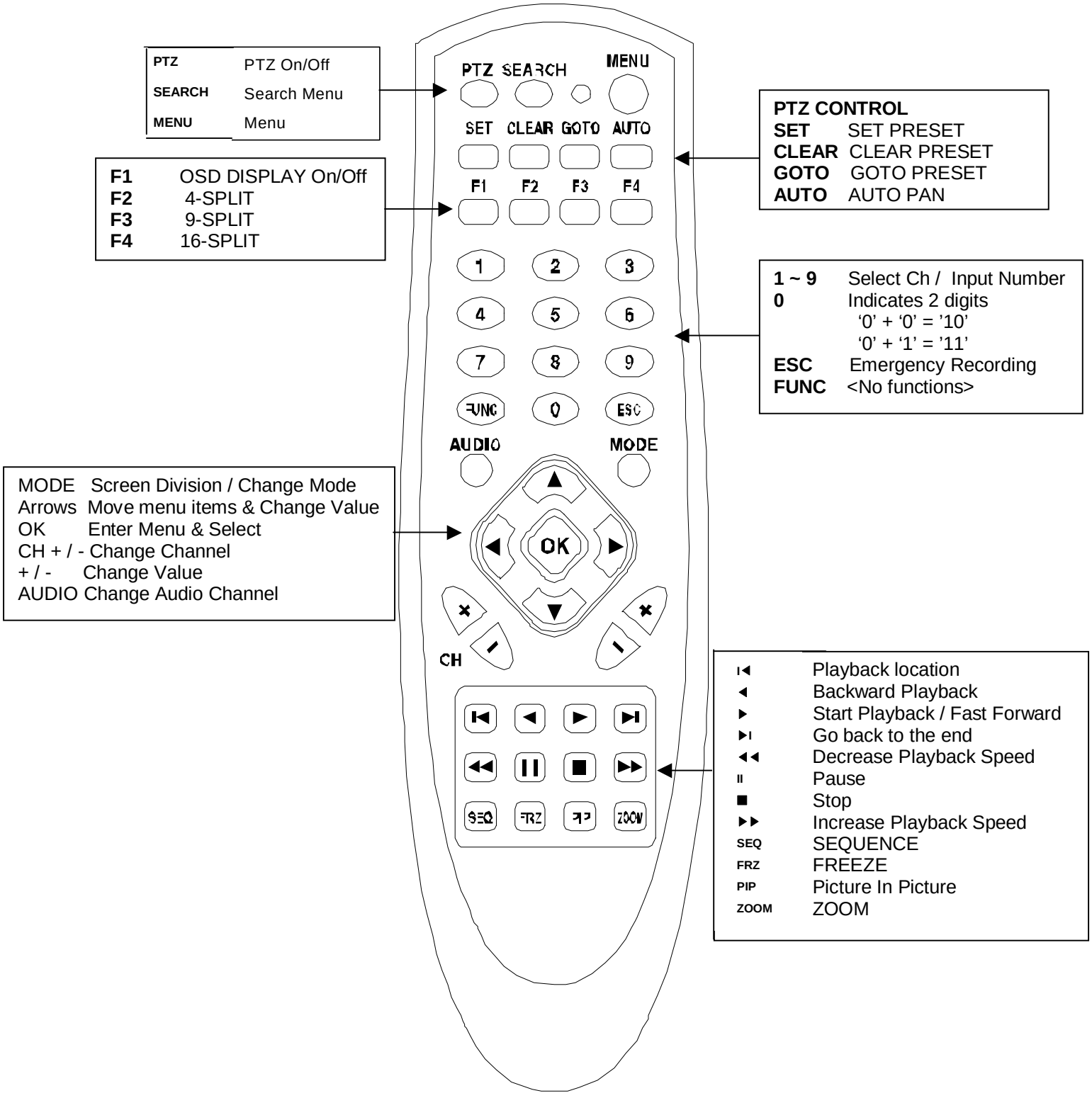
Search Menu	**SEARCH**
Decrease Value/Change PTZ Ch	**-**
Increase Value / Change PTZ Ch	**+**
Change Ch / Change PTZ Command	**NEXT**
Move menu items & Change Value	▲
Move menu items & Change Value	◀
Move menu items & Change Value	▶
Move menu items & Change Value	▼
Enter Menu & Select	**ENTER**
4-SPILT	**4-SPLIT**
9-SPILT	**9-SPLIT**
16-SPILT	**16-SPLIT**
Change Audio Ch	**AUDIO**

1~9, 0	Select Ch / Set Number
+10	For selecting Ch10~16
Q.Play	Quick Play

There are various remote controller types supplied with this equipment. Please access related documentation.

CHAP. 10 Remocon Key Definition

2. SINGLE Type



4 Channel Record time table.

HDD Capacity (GB)	PAL				
	Basic	**Normal**	**Enhanced**	**Fine**	**Super Fine**
	14K	19K	24K	29K	32K
80	33 Hr	25 Hr	19 Hr	16 Hr	15 Hr
160	67 Hr	49 Hr	39 Hr	32 Hr	29 Hr
250	104 Hr	77 Hr	61 Hr	50 Hr	46 Hr
300	125 Hr	92 Hr	73 Hr	60 Hr	55 Hr
400	166 Hr	123 Hr	97 Hr	80 Hr	73 Hr
500	208 Hr	154 Hr	121 Hr	100 Hr	91 Hr
600	250 Hr	184 Hr	146 Hr	120 Hr	109 Hr
800	333 Hr	246 Hr	194 Hr	160 Hr	146 Hr
1000	416 Hr	307 Hr	243 Hr	200 Hr	182 Hr

8/16 Channel Record time table.

HDD Capacity (GB)	PAL				
	Basic	**Normal**	**Enhanced**	**Fine**	**Super Fine**
	14K	19K	24K	29K	32K
80	17 Hr	12 Hr	10 Hr	8 Hr	7 Hr
160	33 Hr	25 Hr	19 Hr	16 Hr	15 Hr
250	52 Hr	38 Hr	30 Hr	25 Hr	23 Hr
300	62 Hr	46 Hr	36 Hr	30 Hr	27 Hr
400	83 Hr	61 Hr	49 Hr	40 Hr	36 Hr
500	104 Hr	77 Hr	61 Hr	50 Hr	46 Hr
600	125 Hr	92 Hr	73 Hr	60 Hr	55 Hr
800	166 Hr	123 Hr	97 Hr	80 Hr	73 Hr
1000	208 Hr	154 Hr	121 Hr	100 Hr	91 Hr